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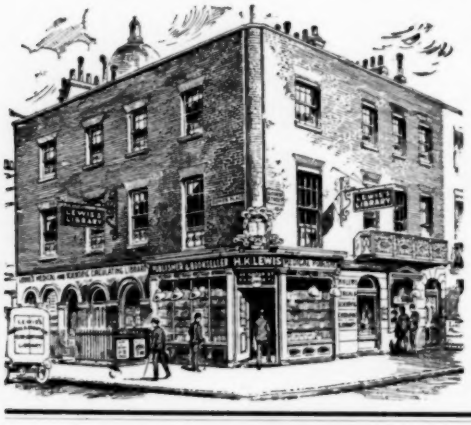

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Principles
OF
TREATMENT BY MANIPULATION
OF SOME CHRONIC DISORDERS OF THE KNEE-JOINT FOLLOWING INJURY.

BY A. G. TIMBRELL FISHER, *M.C.*, F.R.C.S. ENG.,

LATE HUNTERIAN PROFESSOR OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; SURGEON (WITH CHARGE OF OUT-PATIENTS) AND JOINT LECTURER ON OPERATIVE SURGERY, DREADNOUGHT HOSPITAL.

AN attempt will be made in this paper to point out the underlying pathology of those chronic affections of the knee-joint following injury that may be cured or markedly alleviated by that valuable and often brilliant therapeutic measure, manipulation.

The medical historian of the future will have to record that our profession has greatly neglected this important subject and has shown too often a tendency to prescribe rest when movement has in reality been indicated, adhering to the dictum "rest inflamed structures" when the cause of the chronic inflammation has been some intra-articular condition which a lifetime of rest or its concomitants, plaster, Scott's dressing, and strapping would not cure, but which could often have been rapidly cured by special manipulative methods. The fact must be faced that the bone-setter has been curing multitudes of cases by movement, many of which have previously been ordered too prolonged rest by our profession, even by its most eminent members, and that by our often faulty methods we are largely responsible for his very existence. It is churlish and dishonourable under these circumstances to throw exaggerated emphasis on the dangers of bone-setting, real though they be, and to minimise the good work for humanity that some of the best of these unqualified practitioners have performed.

Wharton Hood wrote more than 50 years ago:—

> "The belief in the great value of rest in such cases may be regarded as a tradition handed down from the time of Sir Astley Cooper, who said, 'In no cases, after injury, should the patient be allowed to exercise the parts as usual, until all pain has ceased and the part has nearly regained its original form.'"

Hilton and H. O. Thomas perpetuated this teaching. Although half a century has passed since these words were written, the tradition is still firmly rooted in certain circles.

There are a large number of different lesions affecting the knee-joint which may occur after trauma. It is proposed to enumerate first examples of the after-affects of an exceedingly common form of injury—viz., sprain of the internal lateral ligament, although much will apply to other sprains of this joint. Afterwards we shall shortly discuss the after-effects of contusions, lesions of the semilunar cartilages, toxic or infective synovitis, chronic arthritis, combined cases, and functional cases.

Space will not permit here of any description of manipulative technique, and for this reason a number of illustrative cases are also omitted. Further details will be found in a forthcoming publication.

SPRAINS OF INTERNAL LATERAL LIGAMENT: PREVENTION OF ADHESIONS.

Much that follows in this section applies also to sprains of other ligaments of the knee such as the external lateral.

The general treatment of such sprains, and the prevention of adhesions resulting from synovitis following a sprain of a lateral ligament, can be summed up in a few words—viz., "Rest from all undue strain of the damaged ligament combined with early movement of the joint." At first sight this maxim may seem contradictory, but in reality this is not the case. Rest from weight-bearing and excessive use permits healing to proceed, but early movements, at first of but short duration, prevent the formation of adhesions. The principle of early movement, admirable though it be, is not sufficient, for unless we aim at early movement *through its full range*, adhesions may yet develop and give rise to much subsequent trouble.

Let us attempt to illustrate the principle of the prevention of adhesions by a concrete example, viz.:—

Treatment of a Case of Synovitis of the Knee following a Sprain of the Internal Lateral Ligament.

Rest in bed or on a couch is enjoined at first. This is combined with a firm compression bandage over a thick layer of wool, which should completely surround the joint and extend for some little way upwards into the thigh and downwards into the leg, leaving a small fringe of wool above and below uncovered by the bandage. No splint should ever be used, but the joint slightly flexed over a pillow, for experience has shown this to be the position of greatest ease. Rest from weight-bearing must be enjoined as long as the synovial effusion persists. From the very first the bandage is removed daily and gentle massage (effleurage), electrical stimulation of the quadriceps, and movements may be instituted, for these, added to the elastic compression, play an important part in the absorption of the intra-articular effusion and prevent muscular wasting. Each day the movements are increased. In about a week in marked cases, or considerably less in minor cases, effusion will have subsided, and it should be our aim to have obtained full movements by this time.

There is now no objection to weight-bearing, provided strain upon the recently damaged ligament be eliminated, and this can usually be ensured by the simple device of reinforcing the inner sides of the sole and heel by a wedge-shaped piece of leather ¼ in. in thickness, or in severe cases rotation and abduction may be prevented by the temporary use of a knee-cage which permits flexion and extension. For a short period, and especially if there is any tendency to swelling occurring after exercise, a compression bandage should be worn during the day. This, however, should be dispensed with as soon as possible, as it tends to interfere with the development of the thigh muscles. As this swelling is often due to loss of tone of the thigh muscles, every effort should be made to remedy this by re-education.

Treatment of Chronic Cases.—It has already been mentioned that in many of these cases we are faced with a set of conditions constituting a vicious circle. The sprain has given rise to synovitis; this causes reflex wasting of the thigh, and the resulting laxity of the capsule still further predisposes to minor traumata of the synovial membrane and delayed absorption of synovial fluid. It should be pointed out that the tenderness over the internal lateral ligament is due to the presence of scar tissue, which may be present not only in the ligament itself, but in the synovial membrane lining its deep surface which, indeed, may be adherent to the scar. Now this scar tissue when stretched gives rise to a sensation of acute pain and a reaction in the joint, and hence the recurrent attacks of pain and effusion after exercise. The presence of scar tissue in excess is the *fons et origo* of the group of symptoms, and the great principle of treatment is to deal with this and subsequently to concentrate upon the treatment of the resulting and concomitant conditions. The latter are sufficient in themselves to give rise to serious trouble and a continuance of symptoms after the internal lateral ligament has ceased to be a source of trouble per se. The ideal treatment of the original lesion, as we have seen, is so to direct Nature's efforts that the scar formed is not in excess—neither should it cause any interference with movement, but neither should it be unduly stretched. By early movements there can be no doubt that we may prevent the adhesion of the synovial membrane to the scar in the internal lateral ligament. When adhesions have actually developed which persist after a fair trial has been given of gymnastic exercises, the vicious circle may be broken and the patient put on the high road to recovery by manipulation. In some slight cases this measure is all that is necessary, but in neglected cases the after-treatment is of great importance and must follow two important lines.

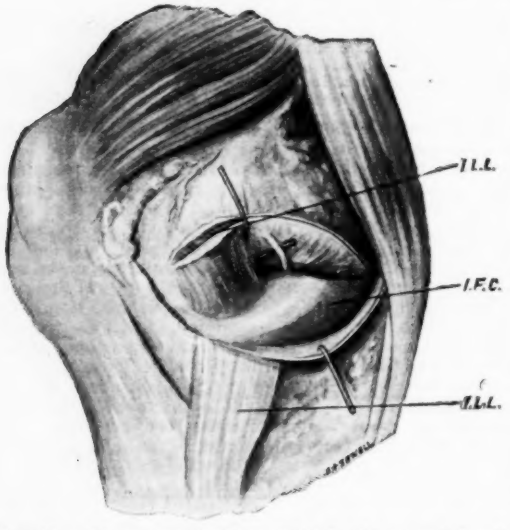
(1) The increased range of movement obtained by manipulation must be preserved, and the ground gained consolidated by the patient voluntarily exercising the joint through the increased range at regular intervals, commencing almost immediately.

(2) The wasted thigh muscles must be made to recover their tone and bulk by re-education. It will be then noted that the lateral mobility hitherto present will usually disappear. In some minor cases the adhesions may be gradually stretched and full movement restored by gymnastic exercises; this process is, however, longer, more tedious, and less reliable than manipulation under anæsthesia.

Pathology of Cure by Manipulation in Cases of Neglected Sprain.—The internal lateral ligament is stretched on full extension but relaxed during flexion. It is difficult therefore to explain the actual mechanical limitation of flexion on the supposition of the presence of scar tissue in the ligament itself. To appreciate better the pathological condition present the anatomy of the region should be recalled.

Surgical Anatomy.—The relationships of the various parts may be seen from a reference to Figs. 1 and 2. It will be seen that beneath the upper part of the internal lateral ligament near its femoral attachment is a synovial pocket or recess which forms part of the synovial reflection from the femoral condyle to the capsule. Normally the two layers of synovial membrane are in contact, and the internal lateral ligament is in contact with the outer synovial layer. In ruptures, either partial or complete, of the long portion of the internal lateral ligament, it is clear that the synovial membrane must participate

FIG. 1.

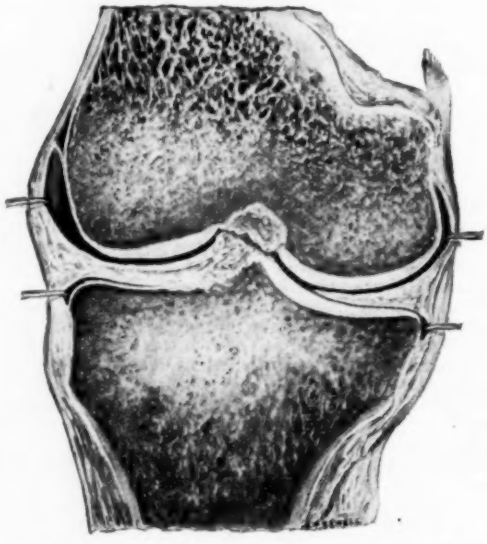


Dissection of inner aspect of knee-joint showing synovial pocket beneath internal lateral ligament and adjacent part of capsule. The rod is inserted beneath an adhesion. I.L.L. = internal lateral ligament. I.F.C. = internal femoral condyle.

therein, and that, if the joint be left at rest, the two opposed layers of synovial membrane must become glued together by inflammatory exudate which may become organised with the formation of a definite adhesion. Furthermore, the outer layer of synovial membrane must become adherent by fibrous tissue to the scar in the ligament.

There is no greater contributory factor in the formation of these adhesions than prolonged treatment by complete rest, plaster, Scott's dressing, and strapping. In fact, the adhesion of the two opposed layers of synovial membrane is made almost certain thereby. Another shallow synovial pocket is also present beneath the attached margin of the semilunar, where the synovial membrane lines the deep surface of the coronary ligament and is reflected from it to the margin of the tibial condyle (Fig. 2). It is probable that after ruptures of the deep fibres of the internal

FIG. 2.



Coronal section through anterior part of knee-joint showing synovial pockets above and below semilunar cartilages.

lateral ligament adhesions are particularly liable to form at this site, giving rise to persistent tenderness. The tenderness at this site is often quite erroneously thought to indicate a displaced semilunar cartilage, and when, as so often happens, a complete cure results from manipulation in this type of case, the bone-setter has often obtained the credit for curing a displaced cartilage of long standing.

CONTUSIONS OF THE KNEE-JOINT.

The most characteristic symptom of contusion is that the pain and tenderness are localised to the affected area and remain thus localised for a considerable period, and in some cases a troublesome form of periostitis ensues. Contusions, like sprains, are very liable to be followed by synovitis with effusion, and much that has already been said concerning the general pathology of adhesions in cases of sprain applies also to adhesions following contusion. There is, however, a great tendency in the latter cases for the adhesions to be more generalised, and although they may occur almost anywhere, they tend to be more marked in the front and lower part of the joint, in the region of the infrapatellar pad of fat and its processes, and at the lateral synovial reflections. The adhesions may be of great delicacy and yet potent of much trouble, or of a somewhat extensive nature. Localised tenderness is often present, with limitation of some particular movement or movements. In this connexion the movements of the patella laterally and the rotatory and "screw-home" movements should always be tested. The pathology of this type of case is described more fully in the author's book.[1]

CHRONIC OR RECURRENT LESIONS OF THE SEMILUNAR CARTILAGES: THEIR DIFFERENTIAL DIAGNOSIS AND MANIPULATIVE TREATMENT.

We are not here concerned with the question of manipulation in original displacements of the semilunar cartilage, although it may be mentioned that there is no evidence that early movements after

[1] Internal Derangements of the Knee-joint; their Pathology and Treatment by Modern Methods. H. K. Lewis and Co.

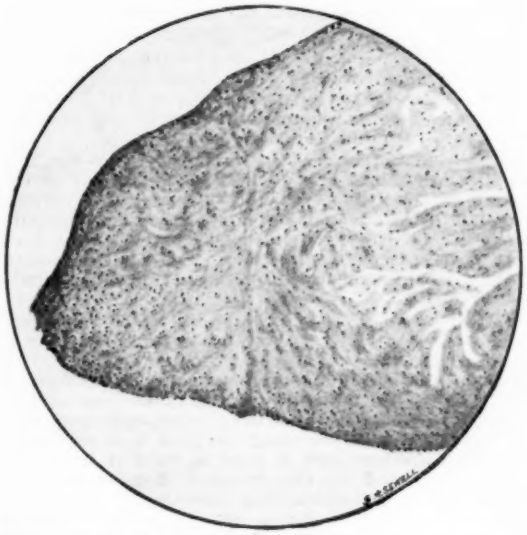
reduction, provided rotation be avoided, are less efficacious in bringing about union than the long period of immobilisation that is often ordered, which is apt to lead to the pernicious after-effects of adhesions and wasting.

The author has investigated the problem of repair in the semilunar cartilages experimentally, and has also examined microscopic sections of fractured semilunar cartilages removed at operation at various intervals from the original injury. These investigations all point to the fact that repair is sluggish in the menisci (Figs. 3 and 4).

It must never be forgotten that in most cases a lesion of the internal semilunar cartilage is in essence a complication of a severe sprain of, at any rate, the deep fibres of the corresponding lateral ligament. There will therefore be a somewhat similar history to that of sprain and a certain similarity in the points of tenderness. In many chronic cartilage lesions, however, tenderness is completely absent. Protrusion of the fractured cartilage outwards, although mentioned in many text-books, is, in the author's opinion, excessively rare, but a peculiar "rumble" or "snap" on flexion and extension is almost pathognomonic of a torn meniscus.

The most characteristic feature about a recurrent lesion of a semilunar cartilage is the history of one or more attacks of true mechanical locking, which may be momentary or last until reduced by manipulation, which often occurs with an audible snap. Very frequently mechanical locking occurs at the original

FIG. 3.



Transverse section of fractured surface of semilunar cartilage of long standing. The surface is smooth and in places covered by an endothelial layer.

accident, and thereafter attacks of sudden giving-way associated with a loud report, crack, or snap, rather than true locking; or, on the other hand, locking may not occur at first, but on subsequent occasions.

One of the most striking features in the differential diagnosis is the excellent and often detailed history that the patient gives. He or she will even demonstrate the exact position of the limb which produces the "locking." A young baronet in whose knee-joint the author found tears of both semilunars told him that any turning movement caused a report "like a double-barrelled gun," and down he fell. The author has frequently felt justified in exploring a knee-joint purely on such an accurate and careful history and in the complete absence of any physical signs, and has almost invariably found in such cases a torn cartilage. True mechanical locking must, of course, be very carefully distinguished from limitation of movement due to synovial effusion and pain, which in the original injury are of later onset, and from other forms of mechanical locking as may occur with loose body or certain injuries to the tibial spine.

In some cases the symptoms of semilunar derangement are less typical. For instance, it is obvious that if merely a slight tear is present this will not bring about true locking, and the symptoms will approximate more to those of sprain of the corresponding lateral ligament, and often there will be a complaint of giving-way rather than of true locking. In the author's opinion it is impossible to diagnose this type from sprain, and it should be treated as the latter at first. Suspicions should be aroused if the symptoms of the sprain persist over an unusually long period, when no limitation of movement suggesting adhesions is present, when all other causes have been excluded (a radiogram being never omitted), and when manipulation followed by a course of re-education of the wasted muscles fails to cure the condition. In such a case exploratory arthrotomy is certainly justifiable, preferably by the author's patella-displacing approach, through which all the structures in the anterior compartment of the joint may be exposed to vision.

To sum up, our sheet anchor in diagnosis between sprain of the deep fibres of the lateral ligament alone and a lesion of the corresponding meniscus must be an accurate and painstaking history. The position of maximum tenderness helps in some cases, but is often fallacious. There is a type of case in which, in the present state of our knowledge, having ruled out of court by a complete investigation other forms of internal derangement, it is impossible to say whether a patient is suffering from the sequelæ of a sprain or whether he has one of the less common types of lesion of the internal meniscus. In my opinion the practitioner should proceed upon the following lines in this difficult type of case. He should explain the position to his patient and advise a manipulation first, for this is simple, free from risk, and often succeeds. In the event of failure, exploratory operation should then be advised.

Underlying Pathology of Manipulation in Lesions of the Semilunar Cartilages.

It may be stated at once that in the author's opinion, although manipulation in cases of neglected sprain or contusion associated with adhesions is a most valuable therapeutic measure, this method of treatment is not quite so satisfactory in recurrent lesions of the semilunar cartilages. Cases of apparent cure occur, especially when too long an interval has not elapsed since the primary lesion, but in some the benefit is of a temporary nature. This fact depends upon the physiology of repair in the semilunar cartilages. Repair is at best sluggish, and when the fractured surfaces have become smooth and endothelialised (Fig. 3) the repair is even more slow, but if accurate apposition is maintained is quite possible.

A fact of fundamental importance in this connexion is that the commonest lesion of a semilunar cartilage is a definite tear which usually takes the form of a complete longitudinal tear or "bucket-handle" type of lesion (Figs. 4 and 5), and the characteristic symptoms of the semilunar derangement are due to the behaviour of the fractured portion of cartilage. It is most important to remember that it is quite possible for the inner torn portion, if narrow, to occupy certain abnormal positions without giving rise to any *permanent* "locking" or limitation of movement or, indeed, to any physical signs whatsoever. For instance, the inner portion may be in the intercondylar space between the crucial ligament and the femoral condyle, and it is only when some sudden turning movement causes the portion of cartilage to slip outwards that giving-way or locking occurs.

If, however, the inner portion is broad, it cannot be in such a position without causing mechanical interference with extension. These facts have all been confirmed on several occasions at operations by the author. This frequent absence of mechanical interference with movement, even when a fractured portion of a semilunar occupies some abnormal position, has hitherto been largely overlooked, but seems to have been known to the bone-setter. It seems fairly clear that what the bone-setter achieves in this type of case is to *cause the displaced fragment to retrace its steps, when, in a certain proportion of cases, sufficient repair may take place between the two fragments to prevent recurrence.* The chances of repair must clearly depend upon the age of the lesion. In time the fractured surfaces become smooth and rounded, and in these late cases the chances of repair are proportionately lessened. Again, in cases of multiple tear the chances of permanent recovery by manipulation are very slight. My operation findings, moreover, convince me that in certain cases in which manipulation has been performed, the fractured portion of the cartilage has been forced into the intercondylar region between the femoral condyle and crucial ligament, where from its position it has given rise to continuance of symptoms, and by slipping periodically between the femoral condyle and the tibia has caused attacks of giving-way or actual locking.

To sum up, the commonest lesion of a semilunar cartilage is a definite tear, and most commonly the complete longitudinal tear or "bucket-handle" type (Figs. 4 and 5). At the original accident the inner torn portion is usually dislocated into the interior of the joint, where, being fixed at first between the femoral and tibial condyles, it gives rise to a mechanical block to extension.

By manipulation two things may happen: (1) The displaced portion may retrace its steps and, provided rotary movements are avoided for some time, repair will probably take place. (2) The displaced portion may be forced still further into the interior of the joint, when the mechanical locking is released, but symptoms become recurrent. In these recurrent cases the fractured portion may yet be made to retrace its steps by manipulation, and repair by fibrous tissue gradually occurs.

There is a group of conditions to which I particularly desire to draw attention that interfere with the normal "screw-home" movement of the inner femoral condyle, and which are particularly amenable to treatment by manipulation. These are: (*a*) Minor displacements of the anterior half of the internal semilunar cartilage due to stretching or tearing of the coronary attachment; (*b*) inflammatory induration of the semilunar process of the infrapatellar pad of fat with adhesions in connexion with the latter process.

(*a*) *Minor Displacements of the Anterior Horn of the Internal Semilunar.*

To refer briefly to the anatomy of this important region. If a transverse section be made through the knee-joint at the level of the semilunar cartilages, it will be seen that the internal semilunar, in addition to the attachment to the true capsule, is firmly adherent to the deep fibres of the internal lateral ligament, and behind this to the aponeurotic layer. The anterior half of the cartilage, however, is separated from the aponeurotic layer by a well-marked interval filled with loose fatty tissue, and the periphery is attached to the margin of the internal tibial condyle by a portion of the true capsule, known as the coronary ligament. A weak mechanical site therefore exists at this spot where the mobile anterior half meets the more fixed posterior half, opposite the level of the internal lateral ligament. A sudden twist inwards of the femur upon the fixed tibia with the knee slightly flexed may, without causing a definite tear of the cartilage or of its anterior attachment, cause a partial rupture of the coronary attachment and a minor displacement, not sufficient to cause obvious locking, but a feeling of discomfort on full extension, which may be limited by a few degrees.

(*b*) *The Semilunar Extensions of the Infrapatellar Pad of Fat.*

In the investigation of 100 formalin-hardened knee-joints I found that the anterior one-third of the internal semilunar cartilage is usually protected by a process of the infrapatellar pad of fat, upon which the important screw-home movement of the internal femoral condyle occurs at the termination of extension; and this process is frequently injured, either alone, or simultaneously with injury of the anterior end of the internal semilunar. Although the process is so important clinically, it has not been considered worthy of a name by the anatomists, although it is often wrongly called the inner alar pad. Possibly "semilunar process" or "pad" might be a better name. In a large number of cases in which it is considered that a lesion of the cartilage is present, it is really this process which is at fault. A lesion of the process may be followed by the formation of adhesions between it and the cartilage, or some other adjacent structure. It seems clear, however, that it is in this group of conditions that manipulation is a valuable therapeutic measure.

We must never overlook another very important fact before deciding that any case has been cured by manipulation—viz., that long intervals which in some cases may amount to many years may normally exist between attacks of "locking," and therefore we can never be logically certain that we have really effected a permanent cure in any given case. If a definite recurrence occurs after a manipulation, operation should in most cases be advised, although occasionally a second manipulation may succeed.

MANIPULATION IN TOXIC OR INFECTIVE SYNOVITIS AND CHRONIC ARTHRITIS.

This condition is very liable to follow any of the aforementioned injuries of the knee in persons past the meridian of life. It is not proposed to discuss its pathology here as the author has previously discussed it in various publications.

The remarks already made concerning the misapplication of rest apply with redoubled force to this group of conditions, in which the articular surfaces are but little affected and the disease is principally situated in the synovial membrane. This leads in most cases to a certain amount of painful limitation of movement due to intra- and peri-articular adhesions.

Unfortunately, the symptoms due to the presence of these adhesions are often mistaken for some progressive disease, and what not infrequently happens is that the patient receives every conceivable form of medical treatment and wanders from one spa to another with the knee fixed in an orthopædic apparatus, and the movement for which the joint is clamouring is withheld. When such a joint is fixed it is physiologically placed at the greatest disadvantage for combating any smouldering infection that may be present, for the circulation not only of blood but of lymph, and the secretion and absorption of the synovial fluid, depend largely upon regular movement. When complete rest is enjoined, the formation of synovial fluid is very markedly diminished, and the amount of fresh blood-bearing phagocytes and antibodies is reduced to a minimum.

One of the principal complaints in this disease is of stiffness and discomfort of the joint after the night's rest or after sitting still for some time, but which disappears after exercise. Over-exertion is, of course, to be most carefully avoided, but the practice of completely immobilising the joint in this type of case is contrary to the dictates of reason or even of common sense.

In chronic arthritis of what the author has designated the chondro-osseous and mixed types in which the articular surfaces are also involved, the principle of preserving movement, if this is possible, should be maintained. In these chronic cases Nature is endeavouring in a remarkable way to form a new

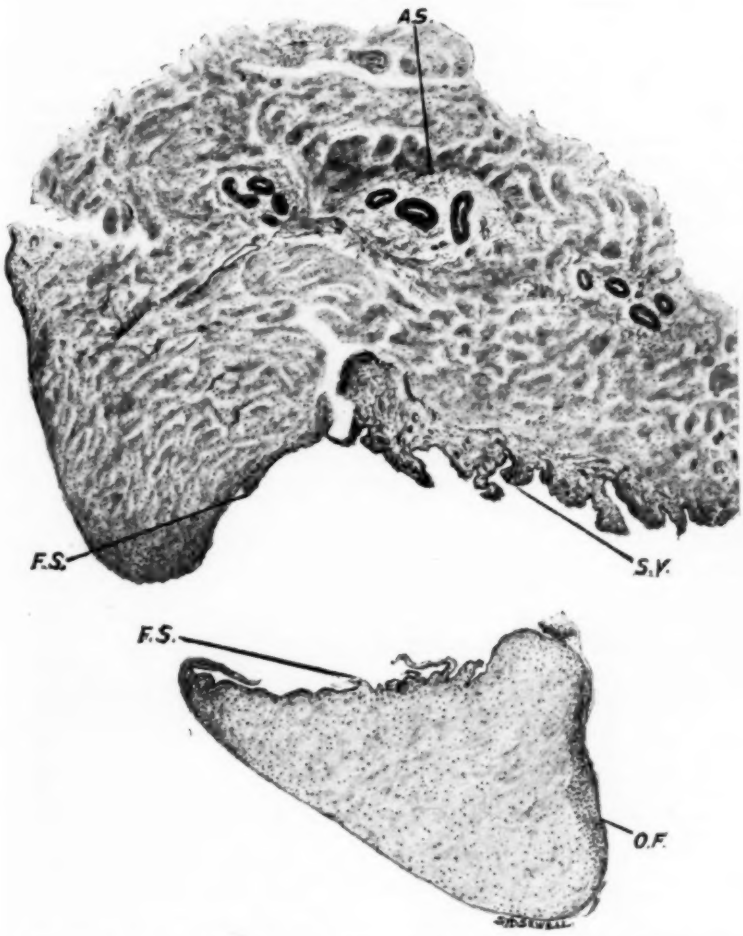
joint, and the patient, if possessed of the necessary determination, can assist the process very materially.

The author has endeavoured to show that a fundamental feature is degeneration of the central poorly nourished part of the articular cartilage and proliferation, which is often compensatory, of the lateral better-nourished portions whereby chondro-osteophytes are formed. Nature makes good the loss of the central part of the articular cartilage by sclerosis and eburnation of the subarticular bone, and the chondro-osteophytes extend the articular surface. If regular movements through complete range are maintained from the first the following benefits result. 1. Contracture of scar tissue, both intra- and extra-articular, and painful limitation of movement is prevented. 2. Mechanical obstruction of movement by osteophytes is also prevented. 3. The process of eburnation is materially assisted. 4. Muscle tone is preserved. 5. The nutrition of the joint structures is maintained.

Many persons are able to lead active lives when all the evidence points to the fact that the articular cartilage in the affected joint has been largely destroyed. In cases in which these principles have been neglected, an effort should always be made in the first place to restore full movement by manipulation. It is often assumed, and this applies particularly to the hip-joint, that if marked osteophytes are present nothing short of open operation can be of any avail. It is surprising to find in many of these cases that the limitation of movement actually due to osteophytes is much less than one would imagine and that by manipulation a marked increase of movement may be obtained.

A strong tendency exists in many quarters to the formation of a fixed joint by excision in these cases. In my opinion this is very rarely necessary and should only be performed as a last resource. It is a tragedy to consider how often this operation is quite unnecessarily performed. A fixed joint is a considerable disability in itself; for instance, an ankylosed hip in good position is usually assessed at 60 or 70 per cent. disablement. Cases have come to my notice on which the operation has been performed on young persons in which it was quite clear that sufficient had not been done to secure a movable joint.

FIG. 4.



Transverse sections of both fragments of a "bucket-handle" lesion of the internal semilunar cartilage after six weeks. The upper or attached portion is well supplied with blood-vessels and repair of the fractured surface has occurred. Blood-vessels are conspicuously absent in the lower portion—the "handle of the bucket"—and there is no evidence of repair. F.S. = fractured surface. S.V. = synovial villi. O.F. = outer fragment. A.S. = attached surface.

FIG. 5.

Typical example of complete longitudinal tear ("bucket-handle" lesion) of internal semilunar cartilage, which constitutes by far the commonest pathological type of lesion.

Mixed Cases.

In certain cases of sprain or cartilage lesion the clinical picture may be greatly complicated by the supervention of a toxic synovitis or chronic arthritis, both of which may be localised or generalised, and in other cases the damaged ligament appears to be picked out by circulating toxins and the picture complicated. This is particularly liable to occur in persons past the meridian of life, and suspicions are aroused by three factors: (*a*) the existence of "rheumatic" symptoms elsewhere or a history of them; (*b*) when recovery from a sprain is unusually prolonged; (*c*) the presence in the patient of some focus of toxic absorption.

FUNCTIONAL DISORDERS OF THE KNEE-JOINT FOLLOWING INJURY.

This is a large and important subject to which it is impossible to do justice in a short paper, and attention is merely drawn to a few special points which are sometimes overlooked.

1. An injury associated with marked mental shock, such as a railway or motor-car accident in which the knee is injured, is particularly liable to give rise to a neurosis in an individual of a nervous temperament. There is no surgeon of great experience who has not at some time been puzzled or misled by a functional condition of the knee.

2. A purely functional condition may occur from the first, or more frequently the condition is superadded upon some such condition as a slight degree of chronic synovitis or arthritis. The unwary or inexperienced may overlook the functional element, and consider that the symptoms and signs betoken a much more marked degree of arthritis than is actually present.

3. Quite apart from the question of injury it must be remembered that a functional element is very frequently quite a marked feature in chronic arthritis in both sexes. These are the cases of "rheumatoid arthiritis" of many years' standing which are cured by "faith-healers."

4. In an early functional case, if spasm be abolished by anæsthesia, full movement can be obtained readily. If, however, the condition is of long standing, actual adaptive shortening of ligaments and periarticular structures occurs. This is, of course, more liable to occur if the condition has been superimposed upon a slight degree of chronic synovitis or arthritis.

5. Even in primarily functional cases swelling of the joint may occur probably from the general loss of tone of the thigh muscles and impaired absorption of synovial fluid. It may then be a moot point whether the functional condition is primary or secondary.

6. Manipulation is by far the most effective therapeutic measure in these functional cases owing to the powerful suggestion of the anæsthetic. Treatment by suggestion should, however, precede and immediately follow the anæsthetic, and be carried on for some weeks or months subsequently.

7. The after-treatment is often of more importance than the manipulation itself, and not only the surgeon, but everyone with whom the patent comes in contact, must endeavour to convince the patient that he or she is now cured.

8. The prognosis in these cases depends upon the time that the condition has been present, in cases of long standing the prognosis is less hopeful. Even more, perhaps, depends upon that indefinable but all-important attribute, the personality of the surgeon who performs the manipulation.

In conclusion, much work remains to be done before bone-setting is placed upon a scientific basis. Let us hope that for the honour of our profession workers will not be lacking, so that we shall eventually arrive at the truth.

SOME

Practical Considerations

IN THE CONSERVATIVE TREATMENT OF FRACTURES OF THE PELVIS AND LOWER EXTREMITY.

A Course of Four Lectures delivered for the University of London at St. Bartholomew's Hospital

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LECTURE IV.*

FRACTURES ABOUT THE KNEE-JOINT.—(*Continued.*)

FRACTURES OF THE PATELLA.

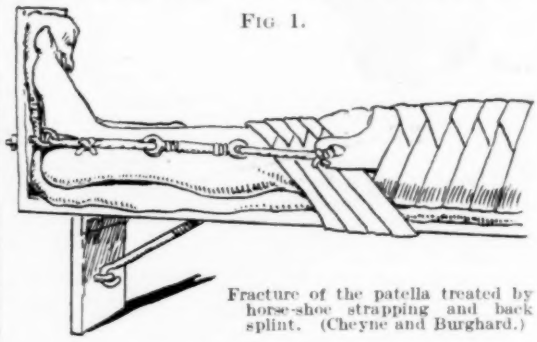
THERE are certain cardinal points in connexion with fractures of the patella to be borne in mind. (1) In comminuted and longitudinal fractures conservative treatment is followed by bony union. (2) Transverse fractures should be treated by operation, but nevertheless an excellent functional result may follow with wide separation of the fragments. I have an intimate friend who fractured his patella about 30 years ago. He has wide separation of the fragments, but walks without a limp and without inconvenience, and takes strenuous exercise. (3) Operation followed by bony union is not always followed by a good functional result. (4) If the fracture occurs near the ligamentum patellæ, the knee-joint may not be opened, as the synovial membrane is reflected from the posterior surface of the patella some distance from the inferior tip of the bone. (5) Circumstances will arise when a fractured patella cannot be sutured under favourable conditions, and if the conditions are not ideal the attempt should not be made.

The first part of conservative treatment is to get rid of the effusion. To accomplish this, the limb should be elevated to relax the quadriceps extensor muscle and a tight bandage applied over several layers of wool. A practical way of helping absorption is suggested by Scudder:

Two slightly moistened bath or carriage sponges are allowed to dry under pressure sufficient to flatten them. These are placed upon each side of the knee and over it, and are held by a few turns of a roller bandage. Cold water is then poured over the whole. As the sponges absorb the water they enlarge, causing equable and firm pressure on the knee, thus very materially hindering the accumulation of fluid and favouring its absorption. This dressing is repeated every day. When the effusion has disappeared a calliper splint can be applied, in the manner recommended by Jones. The calliper splint should be worn for about two months. Full flexion of the knee should then be restrained for a time by a knee-cage, to prevent gradual separation of the fragments.

There are many other methods employed, the "Middlesex Hospital" method being one of the best.

FIG. 1.



Fracture of the patella treated by horse-shoe strapping and back splint. (Cheyne and Burghard.)

Fig. 1 shows the upper fragment pulled down by a horse-shoe shaped strapping to the foot-piece of a back splint.

Operative Treatment.

In dealing with fractures of the patella by operation we must be certain that the largest synovial cavity in the body is not exposed to the slightest risk of accidental infection. If a disaster occurs the knee will be partially or completely stiff. If partially, the joint will be painful. Amputation of the thigh may become necessary in severe sepsis.

I have never performed any complicated operation, such as plating or bone grafting, for fractured patella. A simple procedure is adopted:

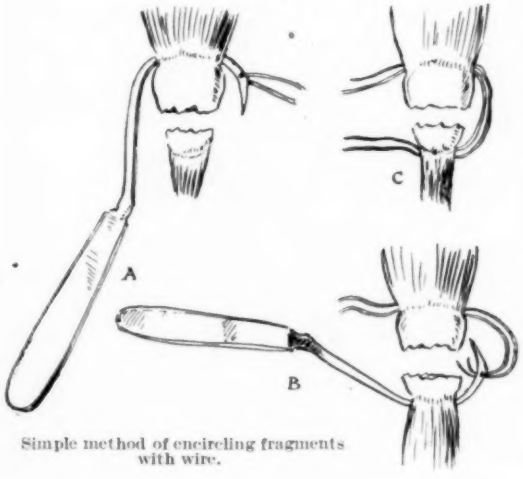
The joint is opened between the two fragments by a curved or transverse incision. Clots and torn tissues are cleared away from between the fragments. Doyen's or Reverdin's needle is passed through the quadriceps tendon in close contact to the upper margin of the patella. The needle is threaded with a fine loop of aluminium bronze wire and pulled through. The loop is cut and the needle is passed through the ligamentum patellæ in close contact to the lower

* Lectures I., II., and III. appeared in THE LANCET of August 15th and 22nd and Sept. 5th respectively.

border of the lower fragment; the double wire is again threaded and pulled through. The ends of the wire are now twisted and tied tightly, bringing the two fragments into apposition by an encircling suture. The torn portions of the capsule and aponeurosis are stitched with a few points of catgut. The wound is dressed. No splint is applied, and the patient is allowed to practise voluntary movements from the beginning, so far as he is able to do so without pain. (Fig. 2, A, B, and C.)

I have found that these cases walk about with the help of a stick after a fortnight or three weeks, and

FIG 2.



Simple method of encircling fragments with wire.

that they return in two or three months with bony union and full movement of the joint.

FRACTURES OF THE TIBIA.

Fractures of one or both condyles of the tibia occur either as the result of distortion or from direct violence, just as in the case of fractures of the condyles of the femur. They may or may not involve the joint, and the treatment is identical with that already outlined for fractures of the femoral condyle.

Fractures of the spine of the tibia, associated with rupture of the crucial ligaments, are not very uncommon. Jones mentions 25 cases. I have seen them from time to time at Mercer's Hospital as the result of severe violence. In one case the tibia was completely dislocated backwards. The knee-joint is immobilised in plaster of Paris, and neither active nor passive movements allowed until two months have elapsed. Then very gradual and gentle movements are allowed. A Thomas walking calliper may be substituted for plaster fixation. If, following this treatment, movements are restricted as a result of a bony block produced by a detached spine uniting by callus, the knee-joint must be exposed by longitudinal division of the patella, and the bony block removed.

OSGOOD'S OR SCHLATTER'S DISEASE.

The condition is sometimes spoken of as "Rugby knee." Pain and tenderness rapidly disappear under rest treatment, and a knee cage should be worn limiting flexion of the knee and the activities of the patient for some months. The epiphyseal strain may exist without much difference between the X ray appearance of the normal and abnormal bone.

FRACTURES OF THE TIBIA AND FIBULA (UPPER THIRD).

These injuries have received but scant attention, owing to the ease with which treatment can be carried out. The treatment is identical with that of fractures of the condyles of the femur, and consists in manipulating the fragments, while an assistant is fixing the extension tapes to the end of a Thomas splint. Loops of bandages are applied to control any lateral or antero-posterior deviations.

FRACTURES OF THE LOWER THIRD.

It is when we come to the common broken leg, that is to say, an oblique or spiral fracture of the lower end of the tibia, with a fracture of the fibula at a slightly higher level, that real difficulties in conservative treatment arise. Fractures of the tibia alone, or of the fibula alone, are already splinted by the uninjured bone. A little extension and manipulation will easily correct any slight displacement, and the limb can be encased in plaster of Paris from the foot to above the knee. At the end of six weeks, weight may be borne on a walking calliper.

Fracture of the fibula alone, without displacement of the foot, is only of interest because the diagnosis may be missed. Special attention should be paid to the ecchymosis which appears some time after the injury, and often extends up along the line of the fibula. The same ecchymosis arises in all fractures, including fractures of the base of the skull. In doubtful cases of fracture of the long bones without displacement, ecchymosis following the line of a bone should put the practitioner on guard. If extensive ecchymosis coexists with a point of maximum tenderness, a fracture is almost certainly present.

These remarks apply to fractures of the fibula, both in its upper and lower thirds.

Walking may be allowed when it is possible to do so without causing pain. No form of splintage is necessary. When the fracture is near the ankle-joint it is wise to wear an outside iron, or to raise the inner side of the boot, so as to anticipate any possibility of valgus deformity occurring under the strain of weight-bearing.

Treatment of Fractures of the Lower Third of the Tibia and Fibula.

With the oblique and spiral fracture I have had more difficulty and seen more bad results than in any other fracture of the lower limb. Anyone with experience in setting these fractures knows that manual extension of the foot is very unsatisfactory. If it is a recent case, and it is decided to fix the limb in plaster from the foot to well above the knee, the hands of the assistant get in the way at every turn of the lower part of the bandage, and displacements occur. It is impossible for an assistant to keep up sufficient extension and to keep the fragments in alignment during the application and setting of the plaster in a difficult case. On the other hand, there is not sufficient of the limb below the fracture to apply adhesive strapping for fixation to the end of a Thomas splint.

Sinclair's foot-piece and glue, as a means of putting extension on the lower fragments, has given satisfaction to many surgeons, but, after failures by this and other methods, I have adopted the following plans sometimes singly and sometimes in combination.

1. In certain cases, with the patient under an anæsthetic, and the knee held flexed by an assistant, extension and manipulation of the foot readily reduces the shortening, and corrects the alignment. If steadily held, there is no great tendency to recurrent displacement of the fragments, and the assistant experiences little difficulty while the limb is immobilised in plaster.

2. The deformity can only be reduced with difficulty, and the slightest move of the foot brings about slipping of the fragments. In such cases the sectional plaster of Paris method, as recommended by Cockerill, is useful. (Fig. 3.) I have a case so treated at present in Mercer's Hospital. By the sectional plaster method is meant that separate plaster casings are applied and allowed to set above and below the injury. The injured area remains exposed and free for manipulation. The first section of plaster should be applied from just above the fracture to the middle of the thigh, with the knee slightly flexed. The second plaster encases the foot. The two sections are allowed to set, and the plaster is trimmed at the edges. The foot is now fully dorsiflexed in slight inversion by the assistant, while the surgeon unites the two plasters by a few turns of a third plaster bandage. If more extension is required than can be obtained comfortably by manual traction, a clove hitch is placed round the foot encased in its plaster and attached

to the gates (see Lectures I. and II.), or pulled upon by means of a block and tackle arrangement. The two plasters are then united as before.

3. When more than manual traction is necessary, the clove hitch over the plastered foot is a somewhat clumsy, though effectual, method of reduction. It is better, I think, to pass a long nail under the tendo Achillis in contact with the os calcis, and connect this through the medium of a wire hoop to the end of the gates, so that forcible extension may be applied. The surgeon simultaneously manipulates the fragments into position, and takes care to pull the heel well forward. There is now no difficulty whatever in applying plaster of Paris, and the extension is not released until the plaster is set. The pin and wire stoop are partially encased in the plaster, but can easily be removed.

FIG. 3.

Sectional plaster of Paris in the treatment of fractures of the lower third of the leg.

4. It will become obvious in certain cases that nothing but continuous traction will reduce the overlapping and shortening. In such cases the nail is passed *through* the os calcis, and after forcible extension on the gates, the hoop of wire is fixed tightly to the end of a Thomas splint until the patient is back in bed. This fixed extension may be continued, but in these cases heavy weight-and-pulley extension is better through the medium of the nail—the Thomas splint merely acting as a sling. It is best to pass the nail obliquely through the os calcis on a slightly higher level on the outer side, so that as traction is employed the tendency is slightly to invert the foot. (Fig. 4.)

5. Operation with internal fixation should be the last resort. Probably the best way of securing the fragments is by means of Parham's bands.

Quite often after open reduction no fixation will be found necessary, and the treatment can be continued by any of the methods mentioned above.

POTT'S FRACTURE.

The original description of Pott's fracture, as given in 1768, has been quoted recently by Sir D'Arcy Power, and is well worth reading. To this day Pott's fracture, in the wards of the big hospitals, constitutes a favourite subject for discourse to students, yet the treatment and the results are far from being universally satisfactory. It is the old story: Want of proper reduction at the time of the injury and want of precautionary measures to prevent displacement when weight-bearing is permitted.

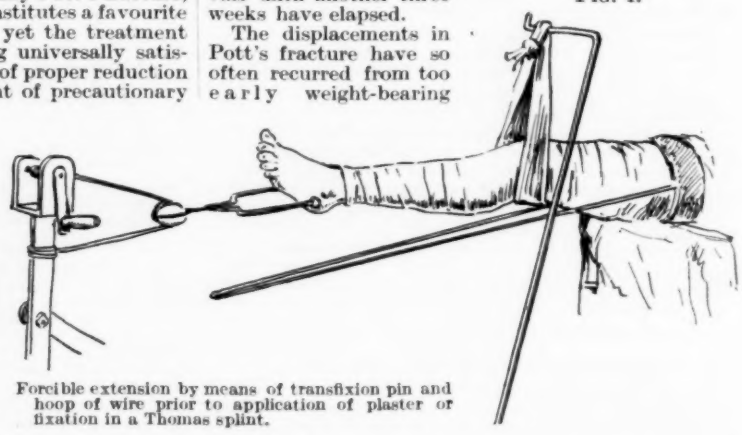
The fracture is produced by violent eversion. The astragalus is thrown against the external malleolus. The ligaments binding the fibula to the tibia remain intact and act as a fulcrum, and the shaft of the fibula breaks at the weakest point near the ankle. The importance of the fracture lies in the fact that the astragalus is displaced outwards, perhaps half-way across the articular surfaces of the tibia as well as backwards. The thrust of the foot, if the deformity is not corrected, is between the tibia and the fibula, and not squarely on the tibia. The backward displacement prevents dorsiflexion of the foot, by the contact of the neck of the astragalus with the anterior edge of the tibia.

A patient with an improperly reduced Pott's fracture can never walk without pain in the ankle and pain on the inner side of the knee with a tendency to knock-knee. The distortion outwards of the foot leads to a condition of flat-foot, a further addition to the misery of the patient. If there is much displacement outwards of the foot, the internal malleolus or the internal lateral ligament must, of necessity, be torn. Pott's fracture may be transformed into a Dupuytren's fracture by forcing the astragalus up between the tibia and the fibula. The astragalus may carry with it a portion of the articular surface of the tibia; a piece may be knocked off the anterior portion of the tibia and block dorsiflexion, or a portion of the back of the tibia may accompany the backward dislocation of the foot. (Figs. 5 and 6.)

Whatever the complications the treatment is the same. Under an anæsthetic the outward and backward displacements must be reduced. As in fractures of the lower third of the tibia and fibula, relaxation of the tendo Achillis by flexing the knee is an advisable preliminary. The foot is then forcibly twisted inwards in order to bring the astragalus squarely under the articular surface of the tibia, and at the same time the heel is pulled steadily forward until the foot can be dorsiflexed with ease beyond a right angle. The foot must be maintained in this position of dorsiflexion and exaggerated inversion.

The displacement does not readily recur after reduction, and any form of splint intelligently applied will secure fixation. A board or gutter splint secured to the outer side of the leg and well padded at the lower extremity will, by a thrust, keep the foot inwards. Dupuytren's splint and Syme's splint are still employed. Plaster of Paris in a recent case is an admirable means of fixation. It should extend—as in fractures of the lower third of the leg—from the foot to above the knee. It is best to make two plaster splints composed of several folds of superimposed bandage. One strip is made into a posterior splint, which extends from the toes along the sole, round the back of the heel, and up beyond the knee-joint behind. The other strip is moulded in position while the foot is held in inversion, and extends from the external malleolus over the dorsum of the foot to the inner side under the sole, and upwards along the outer side of the leg to the same height as the posterior splint. The posterior splint is applied first, and both are secured in position by a roller plaster bandage. The foot must be held in the correct position during the setting of the plaster of Paris. They can be easily removed in about three weeks for massage and movements, but should be reapplied in the intervals until another three weeks have elapsed.

FIG. 4.



Forcible extension by means of transfixion pin and hoop of wire prior to application of plaster or fixation in a Thomas splint.

The displacements in Pott's fracture have so often recurred from too early weight-bearing that it is best to prohibit walking for at least two months from the original injury, and before walking is allowed the inner side of the heel and sole of the boot should be raised so as to maintain a slight varus position.

In dealing with patients who are not helpful, or in heavy subjects, it is wise to prescribe an outside iron and an inside cross strap, so as to ensure support and inversion. I will describe three cases, but I have had many, in which the patient was treated accurately while in hospital, but when weight-bearing was resumed the callus was not strong enough to bear the strain, and the patient returned with pain and disability

consequent on gradual yielding in the direction of the original displacement. It is important to know what to do in cases which have been allowed to walk

FIG. 5.

Fracture of fibula with portion of tibia detached and blocking dorsiflexion.

four or five weeks after the accident without support and who come back suffering from pain and a valgus deformity.

CASE 1.—The patient was a big, heavy woman, who refused to stay in hospital more than a week. The displacements were reduced, and the foot put in plaster of Paris. She commenced weight-bearing at the end of a month, and then returned to the extern department of the hospital, with pain and some slight eversion and tenderness at the site of fracture. An X ray photograph showed no displacement. The boot was raised on the inner side, and an outside iron fitted so that the foot was well inverted. In this case, a recurrence of the deformity was anticipated and prevented.

CASE 2, a private patient, came for advice seven weeks after her accident. The fracture was reduced correctly by her local doctors, but she began to walk without permission and without support after the lapse of a month. An X ray photograph showed the astragalus displaced outwards and somewhat backwards. The patient was anæsthetised, and thorough wrenching in an inward and forward direction was carried out with a Thomas wrench. This procedure did not appear to bring the foot satisfactorily into position, and an osteotomy of the fibula was done. Further wrenching after the osteotomy completely corrected the displacement. Three weeks later she was discharged in a light plaster case, and shortly afterwards was fitted with an outside iron and a crooked heel. Her progress was quite satisfactory.

CASE 3.—This patient came back a year after recurrence of the displacement. The fibula was divided, and a cuneiform osteotomy performed on the inner side of the tibia, after the method of Jones, so that inversion of the foot could be obtained and the weight thrown on the outer side of the foot without making any attempt to reconstruct the joint.

This simple form of osteotomy has given me good results. I have never undertaken the reconstruction of the fracture, as recommended by Murphy and others.

The patient is seldom quite well and free from pain after a Pott's fracture in less than six months. It may sometimes be necessary to do an open operation, when a portion of the tibia, either in front or behind, is torn off and mechanically blocks the movements of the ankle-joint, but in cases seen early forcible manipulation will usually secure a right-of-way in every direction.

FRACTURE OF THE ASTRAGALUS.

Sometimes from heavy falls on the feet the astragalus may break instead of the tibia and fibula. There is often an irregular comminution of the body, or the neck may be fractured, and to all intents and purposes the latter fracture is outside the ankle joint. Forward dislocation of a fractured astragalus can be reduced by traction on the foot, and, if necessary, the tendo Achillis is divided in order to pull the os calcis away from the tibia. In some cases the fractured bone gets so twisted and displaced that astragalectomy becomes necessary. In cases of fracture of the neck, as distinct from fractures of the body, there is usually little displacement, and treatment should consist in placing the foot in full dorsiflexion in plaster of Paris for three weeks. Weight-bearing should not be allowed for two months.

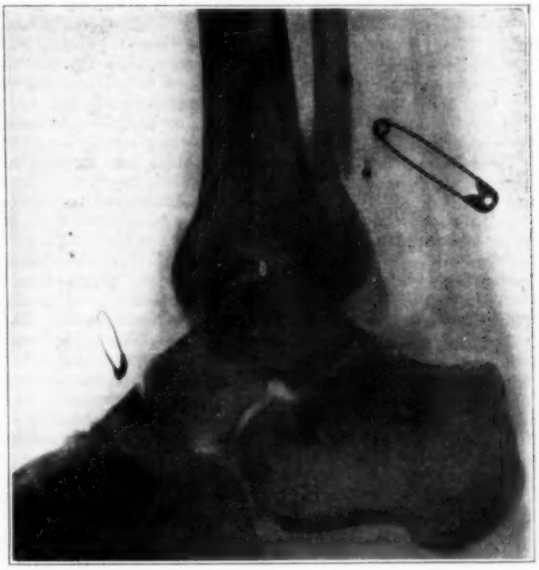
Sometimes a little ossicle of bone, described by Pirie, is seen between the astragalus and scaphoid as if detached by an injury; a comparison with the sound side will sometimes show a similar condition. The recognition of "Pirie's ossicle" is of medico-legal importance; it is not the result of injury.

Thurstan Holland, in the *Journal of Anatomy*, July, 1921, deals with the significance of this ossicle.

FRACTURE OF THE OS CALCIS.

The bone may be torn by muscular action at the point of insertion of the tendo Achillis. It may be crushed, fractured transversely or longitudinally, and may be associated with fracture of

FIG. 6.



Fracture reduced and treated in plaster of Paris.

the astragalus. Complete plantar flexion of the foot may be needed to bring the fragments well into position and to take the pull of the tendo Achillis

from the posterior fragment. A traumatic flat-foot often results from unreduced fracture of the os calcis or astragalus.

The treatment in the first instance should anticipate this possibility, and after attempted reduction the foot should be placed in slight inversion.

Fractures of the os calcis give unsatisfactory results, a painful heel often persisting whatever treatment is adopted. The treatment of this unsatisfactory late result was discussed by Cotton in "Annals of Surgery," 1921. He regarded it as being due chiefly to excessive new bone formation on the outer side locking the fibula to the os calcis, and he recommended a U-shaped incision under the external malleolus, the turning up of a subperiosteal flap, and a wide removal of bone in this area.

FRACTURES OF THE SCAPHOID.

Bennett described two examples of fractures of the scaphoid bone of the foot in 1884. The articular surface which receives the head of the astragalus presented lines of ununited fracture, but on the opposite surface—in contact with the cuneiform bone—the lines of fracture were quite indistinct.

Thurstan Holland draws attention to the presence of a distinct skeletal bone situated at the posterior external side of the tuberosity of the scaphoid which has been mistaken, after injury, for a fracture of the tuberosity of the scaphoid. To assist in the diagnosis, the other foot should always be examined. The bone is usually known as the "tibiale externum."

FRACTURE OF THE METATARSAL BONES.

Fracture of the metatarsal bones usually causes flattening of the transverse metatarsal arch. Treatment is directed to restoring this and maintaining fixation for some weeks. A pad should be applied in the cavity of the arch, and the latter kept in position by a circle of adhesive strapping. To prevent metatarsalgia, weight can be prevented from falling on the fractured bone by a transverse metatarsal bar across the sole of the boot. It must be remembered that a small portion of the base of the fifth metatarsal bone may be detached normally and remain as a separate bone throughout life—"the bone of Vesalius"; it appears in an X ray photograph as if a fracture.

FRACTURE OF THE SESAMOID BONES.

The sesamoid bones must not be forgotten. Cases have been reported by Hall Edwards, by Scales, and by Muller, which were operated upon and the diagnosis of fracture confirmed. Kellog Speed lays great stress on these injuries, and says they are usually due to a heavy object falling on the foot, or sudden increase in weight-bearing force when carrying heavy objects. Physical examination reveals little, but by finding persistent tenderness under the head of the first metatarsal, the possibility of this fracture should be considered. Out of five cases, four were found to be fractures of the internal sesamoid, which is more distinctly in relation to the head of the metatarsal bone. The best treatment is removal by operation.

Thurstan Holland states that, developmentally, the inner sesamoid may be in two, three, or even four separate bony pieces. Many times, says Holland, such a bone has been described as fractured when there has been a history of injury, but, in his experience, fracture must be a very rare occurrence, and most of the so-called fractures are really nothing of the kind. Comparison should be made with the other foot. In the same paper, he reminds the surgeon of the bone of Vesalius, referred to above, which is probably a persistent epiphysis, part of the spur-like process at the base of the fifth metatarsal bone. At first sight it looks like a chip of bone separated as a result of injury.

OPERATIVE TREATMENT OF FRACTURES.

In these lectures I have confined my remarks to the conservative treatment of fractures, but operation may be part of the conservative treatment, and in a number of cases, especially when necessary appliances are not available, the displacement of fractured extremities may be reduced without internal fixation by open operation. Afterwards the treatment along conservative lines is continued.

In very few cases within recent years have I found it necessary to apply plates, screws, metal bands, or bone grafts.

I think the internal fixation of fragments with foreign bodies served a useful purpose during a period when splints, such as Liston's splint, Cline's splint, and MacIntyre's splint were the best known to surgery, and were often responsible for deplorable results. During this period neither traction nor suspension was generally understood. I think plates and screws have done the same service in the surgery of fractures as Murphy's button has done in the case of intestinal surgery, at a time when the technique of suture of the intestines was in its infancy. The work of Sir Arbuthnot Lane, and others of the same school, has been an immense impetus to those working for better results in the treatment of fractures, and I believe it will go down to history as an important landmark in the march of surgery.

It appears to me that the time has arrived when the routine operative treatment of recent fractures must be regarded as a confession of failure—a confession that the surgeon is unable, by manipulative methods, to reduce deformity and to keep deformity reduced until a first-rate functional result is assured. Imagination and skill are more often required in the non-operative than in the operative method of treatment. The management of a case for the first three or four weeks requires constant and minute attention, but these disadvantages must be offset against the very real dangers in connexion with operation, especially in the case of fracture of the femur. Even assuming the most perfect surgical technique, delayed union, non-union, delayed infection, perhaps through the blood stream, may take place, and the treatment of fractures so complicated must be commenced de novo under the most unsatisfactory conditions. I speak only of recent fractures. If conservative treatment is not successful in the first instance, a new beginning can usually be made with a bright outlook, provided too long an interval of time is not wasted before the surgeon sees the error of his ways.

The wave of thought in favour of operative treatment of fractures during the decade prior to the war was due to faulty teaching in orthopædic methods. Every student was taught with minute accuracy how to reduce dislocations. No surgeon ever dreamt, unless under very exceptional circumstances, of reducing dislocations by open operation. It was different in the case of fractures. I can remember quite well how minutely I was taught the mechanism of the displacement of the fragments in the case of fractures, and when that aspect of the injury was completed, the teachers and the text-books went straight on to a detailed description of a multitudinous variety of splints and the methods of their application. There was hardly an intelligent sentence in reference to the all-important subject of reduction.

It is on reduction of displacements and the attainment of a perfect alignment that union and a good functional result depend. I can give no better example of this than fracture of the neck of the femur. It was no wonder that a rising generation of surgeons before the war determined that by some means or another alignment and reduction must be assured, and in an aseptic era the easiest method appeared to be open operation.

The war has come and gone, and we know that by non-operative methods we should be able in the great majority of cases to attain perfect alignment and a perfect functional result free of risk, immediate and remote. To this day there are cases, few and far between, where a Murphy's button is of use in intestinal surgery, and so occasionally operation will be needed in a surgeon's practice. In the realm of fractures there still remain the patella, the olecranon, and a rapidly decreasing number of the oblique fractures of the lower third of the tibia and fibula, which may defeat all efforts at conservative treatment.

ON THE EXPERIMENTAL TREATMENT OF IMPLANTED MALIGNANT TUMOURS OF THE RAT.

BY THOMAS LUMSDEN, M.D. ABERD.

(From the Department of Experimental Pathology, Lister Institute.)

IN a previous communication [1] the effects of an antiserum upon cancer cells, growing in vitro, were detailed. It was shown that if 1–2 g. of finely divided mouse carcinoma (M. 63, Imperial Cancer Research Laboratory) were injected into the peritoneal cavity of a rat or rabbit weekly for two to three months, a concentration of antibodies, sufficient to kill cancer cells in vitro within a few minutes, was obtainable in the serum of the rat or rabbit. If mouse heart muscle, spleen, kidney, or salivary gland were grown on the same slide as a fragment of mouse cancer, an application of the antiserum, which killed the cancer cells rapidly, did not seriously damage the normal mouse tissues. Thus a fragment of heart muscle might beat and grow in the antiserum for four or five days, after the death of the cancer cells cultured alongside of it. Since the above facts were published they have been confirmed more than 200 times, and no single instance has been observed in which cancer or sarcoma cells could survive in an antiserum made as above directed.

The object of the experiments now reported was to determine whether comparable results could be obtained in the living cancerous or sarcomatous animal.

Experimental.

The tumours employed were the mouse carcinoma (M. 63 of the Imperial Cancer Research Laboratory) and Jensen's rat sarcoma. In most cases the sarcoma was used because it was found that while M. 63 is very satisfactory for in vitro work, it is less suitable for experiments in vivo. It is a hæmorrhagic tumour and tends to degenerate readily, so that when it attains a considerable size it consists of an actively growing shell surrounding a central mass of degenerate tissue. Its hæmorrhagic nature made it almost impossible to obtain an antiserum which did not contain a large amount of agglutinins and lysins for mouse red blood corpuscles, which naturally increased its toxicity. These could be absorbed, but the serum obtained from one rabbit might require the corpuscles of several dozen mice for its complete absorption. Jensen's rat sarcoma, on the other hand, grows freely and, even when it attains large proportions, consists of a mass of healthy malignant cells with a minimum of stroma and free from hæmorrhages. Central degeneration sets in very late, and although this tumour, like all others, may occasionally absorb before it gets a firm footing, it practically never does so when well established, say, in the flank of a healthy young rat. Thus, with the precautions taken in the following experiments, out of considerably over 100 tumours of the foot only two absorbed spontaneously, and of over 400 established tumours of the flank or back in young rats I have not seen one example of unaided recovery.

A. *Infectivity of Cancer Cells Previously Treated with Antiserum.*

In order to determine whether cancer cells treated with antiserum in vitro were capable of producing a progressive tumour in vivo the following experiment was undertaken. Mouse carcinomata were removed aseptically and the healthy portions finely divided up with scissors. Of this material about 1 g. was transferred to a heavy watch glass and 5 c.cm. of normal rabbit serum was added. To a similar amount of the tumour tissue in another watch glass 5 c.cm. of antiserum was applied. The watch glasses were covered with glass plates, and sealed with vaseline to prevent evaporation. They were then placed in an incubator at 37° C. for periods varying from three to six days. In other instances the fragments of cancer to be used for inoculation were cultured separately by the ordinary hollow slide and cover-glass method, in normal rabbit serum, or in antiserum from an immunised rabbit. The results of these two methods were exactly similar and may be given together.

Of 15 mice inoculated with cancer cells cultured in normal serum for from three to seven days, seven developed progressive tumours—i.e., 46·6 per cent. Of 20 mice inoculated with cancer cells kept for three to six days in antiserum not one developed a progressive growth; in all cases, however, an inflammatory reaction was seen at the site of injection which passed off in seven to ten days. It appeared then that the antiserum had so damaged the cancer cells that they were unable to infect when inoculated into normal mice or else the immunity induced by the absorption of the attenuated cells was sufficient to prevent tumour formation.

B. *Investigations of the Curative Effects of Antiserum in Vivo.*

The antisera are definitely toxic and irritant; thus it was found that 0·25 c.cm. of unabsorbed M. 63 antiserum when injected into the tail vein might kill a 25 g. mouse within 10 to 30 minutes. If the antiserum were fully absorbed with mouse red blood corpuscles then 0·4 or 0·5 c.cm. might sometimes be safely given. When a fatal dose is injected, intense dyspnœa and collapse come on within five minutes, and post-mortem examination invariably shows the presence of acute œdema and congestion of the lungs. Similar results were obtained with Jensen's sarcoma antisera.

Experiments with Jensen's Rat Sarcoma.—The antisera produced as described were obtained from rabbits which had been inoculated weekly from 8 to 16 times with from 1–2 g. of minced Jensen's rat sarcoma. In all cases the sera were tested on healthy growing cultures of Jensen's rat sarcoma in vitro, and invariably cytolysis was observed. It was, however, only after prolonged inoculation that the rabbits gave a highly specific serum. The antisera were tested in sarcomatous rats in the following ways.

1. By injection into the tail vein. As in cancerous mice no curative effect was consistently noticed.

2. Subcutaneously at a point remote from the tumour. This was without benefit. In 1908 Walker [2] reported that in a batch of ten mice treated with subcutaneous injections of an antiserum, the tumours in seven dried up and came away as small scabs. He does not state whether recurrence took place. With the tumours I have employed and using a slightly different technique, I have never obtained satisfactory results.

3. By injection into a tumour of the flank. When the growth was small some amelioration resulted. Out of six rats so treated only one completely recovered. In the case of large tumours gangrene or sloughing may follow such inoculations, but recurrence almost invariably takes place in the ulcerated area so produced.

These unpropitious results were so unlike the invariably lethal effects obtained on the tumour cells in vitro that it was suspected that the antiserum could not have come into intimate contact with the cells in adequate concentration for a sufficient period. An attempt was therefore made (it would be easy in man or any other large animal) to inject the antiserum into the artery going to the affected area and to close the corresponding veins. Even in a large rat this was found to be impracticable on account of the small size of the blood-vessels.

For this reason in the last 100 experiments the following technique was adopted. Rats were inoculated with Jensen's rat sarcoma in either the right foot alone or in both feet, and after two to three

[1] THE LANCET, Feb. 21st, 1925.

[2] THE LANCET, Sept. 12th, 1908.

weeks when the tumours were well established and had attained the size of a green pea (Fig. 1, A) the antiserum was injected into and around the tumour. In most cases before the injection a rubber band was applied round the ankle and the constriction was so graded as to just completely shut off the blood circulation. The purpose of the constriction was to maintain around the tumour a high concentration of the antiserum for an appropriate period. It was found that by means of this manœuvre definitely curative results could always be obtained.

After many trials of different doses of antiserum and varying degrees and duration of constriction, the most effective procedure was found to be as follows. Immediately after applying the rubber band 0·2 c.cm. of antiserum was injected into the tumour, after 15 minutes a further dose was given, and an hour later a third and final injection of 0·2 c.cm. was made. The rubber band was removed after two to three hours from the time of its application. When this was done and repeated in a day or two if the tumour still looked active, in the great majority of cases the tumour disappeared though sometimes, when the growth was large, some loss of normal tissue also occurred. After removal of the constricting band the foot rapidly swelled, and not infrequently some hæmorrhage into the tumour took place. Within three to four days the growth became inactive, either gradually absorbing or forming a brown or blackish crust which separated after 10–14 days, leaving a small healthy scar (Fig. 1, B and C). No instance of recurrence after complete healing has been seen.

In four animals cure was effected without constricting the limb. In this case a preliminary inoculation caused—as it invariably does—inflammatory œdema within five to ten minutes. Into this œdematous area a second and later a third inoculation was made 15 and 60 minutes after the first. In six other animals so treated the tumour continued to grow, and cure was only effected after antiserum with constriction.

The actual results in the last 50 animals treated and the controls employed were as follows:—

Animals treated	50
J.R.S., of foot 46; of tail 4.	
Animals cured	41
Without serious loss of normal tissue, 35 (foot 33, tail 2); with loss of foot 4, of tail 2.	
Animals not cured	9
Tumours of right foot very large, 2; ulcerated, 2; without constriction, 2. Coexisting large tumour of back, 3.	
Control animals (8 recovered)	50
Tumour of foot—spontaneously, 1; of tail after constriction + nor. ser., 3; of foot after constriction + nor. ser., 2; of foot after constriction + $AqNo_2$ (5 per cent.), 1; of foot after constriction antiplatelet serum, 1.	
Other controls (none of which recovered)	42
Constriction and nor. ser., 11; constriction alone, 10; antiplatelet serum and constriction, 2; iodine 0·3 per cent. + constriction, 2; untreated, 16; constriction and $AqNo_2$ (5 per cent.), 1.	

It will be seen that of animals treated 82 per cent. were cured; the 18 per cent. uncured included large or ulcerating tumours in which the antiserum escaped when injected. Of the controls 2 per cent. recovered spontaneously, a further 14 per cent. recovered after control treatment of various sorts, 84 per cent. produced progressive tumours. It was noticed that antisera in which the hæmolysins and agglutinins had been absorbed, though only about half as toxic, were rather more effective against the sarcoma than the unabsorbed antisera.

It must be appreciated that convincing results are only to be attained after very considerable experience and with careful attention to certain essential details. It may be of value here to specify the precautions which are necessary to that end.

1. A potent and specific antiserum must be obtained. This should be tested upon cultures of Jensen's rat sarcoma in vitro before use.
2. The investigator must acquire experience sufficient to enable him to grade the constriction so as not to cause destruction of the foot, and to apply, and if necessary re-apply, the serum in appropriate dose.
3. The antiserum must be sterile, for septicity invalidates the results. If a large septic ulcerating area exists, discharge escapes, and there may not be sufficient absorption from the dying cells to evoke immunity.
4. Only healthy young rats (six weeks to six months) and a vigorous strain of tumour must be used, otherwise the controls might not grow with certainty. In any single experiment the animals should be as far as possible similar in age, breed, &c.
5. Treatment should be begun only when all the tumours are well established and about the size of a green pea.
6. The controls should, as a rule, be equal in number to the cases treated.

C. *Immunity after Cure by Antiserum.*

Bashford, Murray, Haaland,[3] and others have shown that if an animal spontaneously recovers from any particular inoculated tumour it is in future immune thereto. In order to discover whether a similar immunity followed the disappearance of growths after treatment by antiserum+constriction, all the animals which had recovered from sarcoma of the right foot and those which had not been cured were from four to nine weeks after the original implantation inoculated with a fresh graft of Jensen's rat sarcoma in the left foot. All were injected on the same day and with the same tumour material and dose. In all cases a tumour appeared and increased in size for seven to ten days, but thereafter, in those animals in which antiserum treatment had cured a tumour of the right foot, the tumour of the left foot rapidly disappeared. In the animals in which treatment had failed or had resulted in serious loss of tissue, the tumours implanted in the left foot increased and formed typical progressive sarcomata (Figs. 2 and 3). When examined 14 and 21 days after the test implantation of Jensen's rat sarcoma into the left foot, the following were the results. In 35 animals in which the original tumour was cured without serious loss of tissue, 35 were apparently immune—i.e., no tumour developed on the left foot. In six animals with loss of the foot or tail as the result of treatment of the original sarcoma, six proved to be not immune—i.e., a progressive tumour developed on the left foot (Fig. 2). In nine animals in which treatment of the right foot tumour was unsuccessful eight were not immune—i.e., tumour developed on the left foot; one was apparently immune—i.e., the implant in the left foot did not develop.

It will thus be seen that after cure of the tumour of the right foot or tail, by means of antiserum and constriction, the proportion of animals showing general immunity, as evidenced by failure of inoculations of Jensen's rat sarcoma into the left foot, and later into the right axilla, reaches 100 per cent. While if absorption of products from the original tumour was prevented by separation of the extremity no immunity resulted (Fig. 2).

D. *The Effect Produced on a Jensen's Rat Sarcoma Tumour of One Foot, by Treating with Antiserum a Similar Growth of the Other Foot, both Tumours having been Implanted at the Same Time.*

From a number of rats inoculated with Jensen's rat sarcoma in both feet at the same time, 14 in which the tumours had become well established were selected. Of these, five which bore the smaller tumours were retained as controls. In the other nine rats, the tumours on the right foot only, were treated by antiserum+constriction. The experiment was somewhat interfered with by an epidemic of enteritis, but the following results were obtained:—

Tumours of right foot, treated, 9; cured, 9. Controls untreated, 5. Progressive growth, 5.

Tumours of left foot in surviving treated rats, 7; disappeared, 5. (Fig. 4.) In control rats, 5; progressive growth, 5. (Fig. 5.)

[3] Third Scientific Report, Imp. Canc. Res. Fund.

REPRODUCTIONS OF PHOTOGRAPHS ILLUSTRATING IMPLANTED MALIGNANT TUMOURS OF THE RAT. . . .

FIG. 1.

A — Control. Rat 12. Right foot of two rats before experiment. Smaller tumour = control. Larger tumour = rat 12 to be treated.

B — Rat 12. Rat 12, ten days after treatment by antiserum with constriction. Tumour now shrunken and crusted.

C — Control. Rat 12. Right foot of same rats 14 days later. Control rat's tumour has grown progressively. Rat 12 now cured.

FIG. 2.

Showing absence of immunity after "amputation."

FIG. 4.

A — R. L. Tumour of both feet before treatment.

B — R. L. Right foot tumour; removed by antiserum. Left tumour inactive though untreated.

C — R. L. Both feet now free from tumours. Only right foot was treated.

FIG. 3.

R. L. R. L. Right and left feet of two rats. The tumours on the left feet show absence of immunity when original (right) tumour not cured.

FIG. 5.

R. L. R. L. Two control rats with tumours of both feet untreated and growing progressively.

Two of the treated rats died of enteritis after cure of the right foot though before the left foot tumours, which had begun to absorb, had time to disappear. But even discounting these, the results show: Of seven surviving treated rats, in all the right (treated) foot is cured, in five the left (untreated) foot is also cured (Fig. 4). Of the two remaining left foot tumours, one is retrogressing and will almost certainly disappear, one still looks active. All the ten tumours in the control rats grew progressively (Fig. 5).

Discussion.

From observation of the action of antiserum on cancer fragments in vitro the following facts emerge.

1. Malignant cells which have migrated out from the fragment are killed, in a few minutes they cease to move, and the fine fatty granules become irregular in shape and clump together. The nucleus shrinks leaving a transparent ring around it, and the same is true of the granular cell cytoplasm. Later cytolysis occurs and the bodies of the cells become invisible unless stained and are represented only by an irregular mass of protoplasmic debris surrounded by a few large fatty globules.

2. The antibodies diffuse very slowly into the solid fragment of cancer, so that living cells can still be seen in the centre of the fragment even one or two days after antiserum has been applied to it.

If the culture is now fed with normal serum a few cells may again migrate out into the medium. A second application of antiserum may be required in order to kill the whole of the malignant tissue.

The poor diffusibility of the antiserum partly explains why it acts so inefficiently when injected without coincident constriction directly into a tumour in vivo. A further cause of failure is that without stoppage of the circulation in the tumour area, a high concentration of the antiserum cannot be attained locally. When injected into a sarcoma the antiserum forces a passage through the compact mass of malignant cells reaching lymph and blood spaces, from which it is absorbed very rapidly into the general circulation. This is shown by the fact that when a lethal dose of antiserum is injected into a tumour of the back death may ensue almost as rapidly (15–30 minutes) as when a fatal dose is run into the tail vein. The causes of failure when antiserum is injected into the peritoneum, the subcutaneous tissues, or intravenously are probably these: (*a*) The antiserum is diluted with the whole of the body fluids before reaching the tumour. (*b*) When the antibodies have entered the blood-vessels there is some difficulty in their leaving these again. (*c*) The inoculated animals appear to have some means of resisting or neutralising the foreign antibodies, for it is found that they tolerate without ill-effects a larger dose the second time they are inoculated. (*d*) There is some evidence that the antibodies are absorbed by a large new growth when present. Thus it was found more difficult to cure a tumour of the foot when there was in the same animal a large sarcoma of the back.

It is probably because most of the above points were overlooked that the many antisera heretofore used for the treatment of cancer in this country, and especially abroad, have invariably given disappointing results. I suggest that antisera to be directly effective in man ought to be injected into the arteries supplying the tumour area, and the corresponding veins and lymphatics should be tied or compressed.

The reason why sarcomata treated by constriction and injections of antiserum disappear, raises some points for discussion, but clearly the most important thing is the fact that these tumours can thus be got rid of practically at will, and that thereafter the rats dealt with are immune to the tumour concerned.

The possible factors causing the disappearance are: (1) Temporary stoppage of circulation. (2) Consequent retention of a high concentration in the tumour and its vicinity of antiserum injected thereinto, (*a*) acting as a non-specific irritant, (*b*) acting specifically on the sarcoma cells.

The controls make it abundantly evident that constriction as such alone plays, at most, a subsidiary part, for of ten animals so treated not one recovered. It is not so clear that constriction plus some non-specific irritant or some mechanical destruction of the tumour cells is equally ineffective. For of three rats treated with an anti-rat platelet serum kindly given me by Dr. S. P. Bedson, all showed very severe hæmorrhages into and around the tumours. One recovered and proved immune, two were not cured. When normal serum is inoculated several times into a tumour with coincident constriction recovery sometimes takes place; here it is possible that enough damage has been done mechanically to cause retrogression of the tumour. Two sarcomata of the foot and three of the tail disappeared after such treatment, while 11 continued to grow. In passing, it may be remarked that the tail is not a satisfactory site for experimental purposes since spontaneous absorption frequently happens in sarcomata in this situation.

On the whole, it seems probable that the specific cytolysins proved in vitro to be present in the antiserum are the main factor in the recoveries reported above. The fact that a fair proportion of cures follows the repeated injection of antiserum even without coincident constriction favours this view. The selective way in which the tumour was in most cases removed points in the same direction. In about 60 per cent. the growth retrogressed after antiserum and constriction, without apparent loss of any normal tissue; even the skin over the tumour survived, although in some cases tightly stretched and thinned out over a large growth. In most of the other cases of recovery a brown or blackish crust formed (Fig. 1, B) over the tumour area, and when this fell off 7 to 14 days later, a neat scar was left. In these cases just referred to no discharge escaped, so that all products of destruction from the tumour were absorbed into the general system. Such absorption is, I think, necessary if immunity is to supervene, and this explains why no immunity takes place when the tumour is removed surgically, when the limb becomes immediately gangrenous, or when a discharging septic wound or ulcer results from treatment.

The following seems to me to be the sequence of events: (1) When the antiserum is got into the lymph round the tumour cells and is maintained there for some hours in good concentration it selectively kills many of the malignant cells and damages others. (2) Absorption of the products of degeneration of these cells acts like a vaccine, and calls forth a general active immunity which completes the cure locally, and prevents subsequent grafts from holding.

It may be by absorbing the antibodies thus produced by the animal, that a large Jensen's rat sarcoma of the back renders more difficult the successful treatment of a coexisting tumour of the foot. For a similar reason it is hardly to be expected that absorption of a tumour of the left foot should invariably follow cure of a sarcoma of the right foot. The results may be dependent on the relative size of the tumours, &c.

In estimating the meaning of the above experiments it is to be appreciated that causing the disappearance of an inoculated and more or less encapsuled tumour is a very different thing from curing a spontaneous, invading, and metastasising new growth. It is further noteworthy that the conditions were to some extent favourable for success by reason of the site chosen for inoculation. In spite of these considerations the results do seem to indicate a hopeful line of inquiry.

Looking to the future it is proposed to try whether curative effects can be obtained by frequently repeated inoculation of cells damaged by culture in antiserum or of cells otherwise attenuated. Further, if the virus and specific factor for the existence of which Gye and Barnard have adduced evidence prove to be the veritable cause of cancer, then the antiserum may have other than purely cytolytic effects, and it may be possible to obtain a stronger and more specific

antiserum by using these isolated factors as antigens than by employing the living cancer cells as I have done.

Conclusions.

1. An appropriate antiserum kills cancer or sarcoma cells in vitro, rapidly and invariably. It is much less toxic to the normal tissues than to the malignant cells. 2. Pieces of cancer tissue kept in antiserum for three to six days at 37° C. do not thereafter produce a progressive tumour when inoculated into the living animal. 3. Jensen's rat sarcoma of the foot can be caused to disappear by repeated injections of antiserum into and round the tumour, along with temporary stoppage of circulation in the foot. 4. After such removal of a tumour the rat becomes immune, so that a subsequent inoculation of Jensen's rat sarcoma into the other foot or into the axilla does not hold. 5. When an implanted tumour is growing on each foot, removal of one of these by means of antiserum and constriction is, in a large proportion of cases, followed by absorption of the tumour in the other untreated foot. 6. It is suggested that during absorption of the tumour after treatment with antiserum and constriction, the products absorbed from the attenuated or dying cells evoke a general active immunity which completes the cure and prevents subsequent grafts from holding. Such an antiserum might in this way prevent recurrence of a tumour after incomplete surgical removal.

My grateful thanks are due to Prof. C. J. Martin, F.R.S., for putting a laboratory at the Lister Institute of Preventive Medicine at my disposal and for never-failing help and advice in many directions. I have to thank also the British Empire Cancer Campaign for a grant which has enabled me to continue the experiments above recorded.

A CASE OF CHRONIC NEPHRITIS WITH A POSSIBLE PARATHYROID SYNDROME.

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THE following case seems to us to be worthy of a detailed record, since, as far as we are aware, the findings cannot be paralleled in the literature, and since, in view of certain recent observations of Collip, which will be discussed later, the changes in the chemical composition of the blood are of considerable interest. Some details of the latter have been reported already by one of us[1] in a study of the calcium and phosphate content of the blood in nephritis, but in that communication numerous abnormalities presented by the patient were not touched on, and no clinical details were given.

Record of the Case.

The patient, a man of 37, gave no history of any previous illnesses with the exception of two attacks of enteritis while serving in France. He was admitted to hospital on Nov. 7th, 1922, as a suspected carcinoma of the stomach. He had then suffered from attacks of nausea and vomiting for about six months, attacks which had been increasing in severity during the ten weeks previous to admission, and which had led to considerable loss of weight and strength. The vomiting usually occurred three hours after meals and was not accompanied by any abdominal pain. No hæmatemesis or melæna had been noted; there was a doubtful history of jaundice at the onset. The patient also stated that nocturia and polyuria had been present for some years.

Condition on Admission.—An anæmic, wasted man, showing a fine tremor of the hands; no thyroid enlargement. Pulse 80–90. Arteries moderately thickened; apex beat 4 inches from the mid-line in the fifth space, a faint non-conducted systolic murmur present at the apex. Lungs, abdomen, and central nervous system—nothing abnormal. Urine sp. gr. 1010, acid, faint trace of protein, no sugar; deposit, red blood cells, hyaline and granular casts. The amount of urine passed tends to be excessive, frequently exceeding 2500 c.cm., and occasionally reaching a figure in excess of 4000 c.cm. Wassermann reaction negative.

Test Meal.—Free HCl 0·131, combined HCl 0·164, total 0·295—a result which could be taken as excluding gastric carcinoma.

During his stay in hospital the patient suffered from occasional attacks of vomiting and headache. He was at his worst from Dec. 11th, 1922, onwards, when a considerable degree of circulatory failure accompanied by a stuporous, semi-comatose condition developed. In the absence of an increase in the inorganic phosphate of the plasma uræmia was excluded, and the symptoms were attributed to the cumulative effect of chloretone, which had been administered to check the vomiting, in the absence of efficient renal elimination. With omission of the chloretone the patient slowly recovered. On discharge the patient had gained about a stone in weight, and the general condition had improved, though vomiting was still present on occasion. As will be seen from the accompanying table no improvement had occurred in the renal condition as judged by the urea-concentration test, though the blood-urea had fallen as the result of excessive diuresis.

—	Blood urea.	Plasma inorganic P.	Serum calcium.	Serum solids.	Urea-concentration test.	B.P. systolic.
	mg. per 100 c.cm.					
Nov. 13th, 1922	125	4·8	20·1	10·4	1·5	155
,, 20th ,,	132	5·1	18·5	10·2	1·3	155
,, 27th ,,	126	4·6	16·2	9·4	0·8	160
Dec. 13th ,,	146	3·4	17·1	8·6	1·2	104
,, 21st ,,	150	3·5	18·3	8·7	1·2	100
Jan. 1st, 1923	70	3·4	15·6	8·3	1·1	125
,, 11th ,,	48	3·3	13·9	8·4	1·2	125
,, 24th ,,	58	3·6	13·7	8·8	1·1	150
Feb. 16th ,,	52	3·8	14·0	9·1	1·2	160
March 6th ,,	46	3·3	14·9	9·4	1·1	154
,, 23rd ,,	55	3·7	16·1	9·7	1·0	160
April 17th ,,	49	3·2	14·7	9·5	1·0	156

Though on admission the urine showed no sugar, a reducing substance, identified by its osazone as glucose, was present at times from Jan. 21st, 1923, onwards. The amount of sugar present was small, averaging about 0·3 per cent. Tolerance curves to 50 g. of glucose gave the following figures:—

23/1/23. Before: Blood-sugar, 0·100 per cent. After: 30′, 0·100; 60′, 0·131; 115′, 0·125; 135′, 0·110.

8/2/23. Before: Blood-sugar, 0·101 per cent. After: 30′, 0·105; 60′, 0·112; 120′, 0·112.

The glycosuria was therefore attributable to a lowered renal threshold. The sugar tolerance appeared to be increased, the highest level met with in the course of the test being below that usually found in the normal. This point cannot, however, be stressed in view of the possibility of impaired absorption in a patient who constantly suffered from nausea.

Electrical reactions were normal. The basal metabolism gave a figure of + 26 per cent. (Feb. 9th, 1923). X ray examination showed no evidence of pituitary enlargement or atrophy, no changes in the consistency of the bones, and no arterial calcification.

Owing to a progressive weakness in the voice, the larynx was examined on Jan. 30th, and a complete paralysis of the right recurrent laryngeal was found to be present. The alkaline reserve of the plasma, estimated April 17th, 1923, gave a low normal figure—53 vols. CO_2 per 100 c.cm. of plasma.

The patient died three months after his discharge at Exeter, and no post-mortem examination was performed.

Conclusions.

We have, then, a patient presenting definite evidence of chronic azotæmic nephritis, and in addition an increased basal metabolic rate, a possible increase of sugar tolerance, and a recurrent laryngeal paralysis. Of the chemical findings the most striking is the abnormally high calcium content of the serum. The method employed in estimating the serum

calcium was that of Kramer and Tisdall, a method which is usually accepted as sufficiently accurate for clinical use, and at the time at which these high figures were obtained numerous serum calcium estimations were being made upon other patients, in none of whom was a calcium content in excess of 11 mg. per 100 c.cm. of serum met with. In the individual under consideration the calcium at one time reached a figure of 20 mg.

This extraordinary variation of what is usually one of the most constant constituents of the blood naturally suggests an involvement of the parathyroids. Such an involvement would be of the nature of a hyperplasia, since parathyroidectomy leads to a fall in the serum calcium. Some confirmation of this view is to be found in the literature. MacCollum,[2] as long ago as 1905, reported a case of parathyroid hyperplasia, in which a tumour 2 cm. in diameter and composed of parathyroid tissue was found below the lower pole of the thyroid; the patient had suffered from a severe chronic nephritis of some years' duration. In another case of advanced chronic nephritis McCollum noted abundant mitoses in the parathyroids. Later Bergstrand [3] described hyperplastic enlargement of the parathyroids in ten cases of severe renal disease. None of these patients showed osteoporosis or osteomalacia, but deposits of lime salts were present in the kidneys. Barker [4] mentions a case studied by Thomas and Wentworth in which parathyroid hyperplasia was associated with chronic renal disease of ten years' standing. In this patient deposits of lime were present in the tendon sheaths and bursæ of various parts of the body, and an X ray examination showed extensive calcification of the smaller arterioles. At autopsy a considerable degree of bony softening was found to be present.

There appears, therefore, to be good evidence of a connexion between chronic renal disease and parathyroid hyperplasia, and of the possibility of a mobilisation of calcium salts in the condition. As far as we can discover, however, no previous records exist of an increase in the serum calcium in chronic nephritis; as a rule, the calcium of the serum is diminished in proportion to the degree of phosphate retention present.

Recently Collip [5] has studied the effects of an active extract which he has prepared from the parathyroid gland. By repeated injections he was able to raise the serum calcium of normal dogs to a level of 21 mg. per 100 c.cm. When the serum calcium exceeds 15 mg. symptoms of a condition which he describes as hypercalcæmia appear. These symptoms are weakness and atonia, diarrhœa and vomiting, circulatory impairment, extreme viscosity of the circulating blood, and ultimate collapse and death. The extreme viscosity of the circulating blood, which according to Collip makes it difficult to obtain blood even by venesection, was not noted in our case. The chemical changes in the blood that result from such injections are a great increase in the urea nitrogen, a gradual fall in the halogen content of the blood (which, it may be suggested, is a result of the vomiting), a terminal rise in the phosphate content, which is at first unaffected, and a pre-mortal fall in the alkaline reserve of the plasma. It is not as yet clear whether these changes result from a direct action on the kidney, or whether the primary circulatory failure leads to renal inadequacy with the above characteristic changes in the blood. It is, however, obvious that normal dogs may, after repeated injections of the parathyroid hormone, show a chemical blood picture resembling that seen in our patient.

The paralysis of the recurrent laryngeal is a readily conceivable pressure effect in parathyroid enlargement. The cause of the increased basal metabolism remains obscure. No evidence of hyperthyroidism was present, and the action of parathyroid on the basal metabolism does not appear to have been worked out. If the blood-sugar curves are accepted as evidence of increased sugar tolerance, such an effect is to be expected in parathyroid hyperplasia, since parathyroidectomy is reported to produce a diminished carbohydrate tolerance in animals. Salvesen [6] has shown also that in parathyroidectomised animals the carbohydrate tolerance curves rise as the serum calcium falls, and believes that a direct connexion exists between the serum calcium content and the capacity of the organism to deal with ingested carbohydrate. Attempts were made to reduce the serum calcium in our patient by administration of sodium bicarbonate, and di-sodium phosphate, but no definite results were obtained.

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YATREN IN THE TREATMENT OF AMŒBIC DYSENTERY.

WITH A NOTE ON THE RESULTS OF STOVARSOL IN CERTAIN CASES.

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SINCE the introduction of emetine in the treatment of amœbiasis in 1912 various improvements in the therapeutics of amœbic dysentery have been made. It is now generally conceded that emetine injections, although temporarily successful, do not eradicate an amœbic infection from the bowel, even when administered in almost toxic doses. Hence emetine bismuth-iodide and its modification, emetine periodide, have been largely employed in the treatment of the disease and have proved themselves efficacious to a considerable extent in the acute, as well as in the chronic, stage with the passage of *E. histolytica* cysts.

There are several objections to the continued use of these emetine compounds; amongst others may be cited their nauseating and debilitating effects, the liability to develop symptoms of emetine intoxication, the very restricted diet upon which it is necessary for the patient to be placed, and to these may be added the general depressing after-effects, mental and physical, which too often result from their use. In a certain proportion of cases of chronic amœbic dysentery (variously estimated by different authorities) the organisms become resistant to emetine, and under these circumstances it appears to be useless to continue further emetine treatment with the idea of effecting a permanent cure.

The occurrence of emetine-resistant forms has been tolerably familiar to tropical practitioners since the end of the war, and it is for this class of case that Yatren was originally introduced by Mühlens and Menk in 1921.

Yatren ($C_9H_6O_4SNI$) is a combination of iodine with oxyquinoline-sulphonic acid with the addition of 20 per cent. sodium bicarbonate. The iodine is so firmly combined that it is not given off on boiling nor split off within the body of man, hence it cannot produce iodism. For the last ten years Yatren has been in use in Germany and Holland as a wound antiseptic and tissue stimulant. Under the name "Yatren Purissimum No. 105," it is manufactured by the Behring Institute, Marburg/Lahn, Germany. The drug, when given by the mouth or enema, is rapidly absorbed, and is to a great extent excreted in the urine, where its presence can be demonstrated five or six hours later by the addition of ferric chloride, with which it gives a green colour.

In the treatment of amœbic dysentery Yatren may be exhibited in one of three ways: in pill form, containing 0·25 g. (4 gr.), of which two are given twice daily; in cachet form of 0·5 g. (7½ gr.) twice daily by the mouth; or by enema of 200 c.cm. containing 3–6 g. of the drug given daily for 8–14 consecutive days. In 1921 Mühlens and Menk reported upon two extremely resistant cases of amœbic dysentery which had been completely cured by Yatren given by mouth and per rectum. Birt in Shanghai, in 1923, treated a series of 28 cases by lavage alone, using 100 c.cm. of a 10 per cent. solution twice daily, and he concluded that it was a good treatment, but not more efficacious than others previously in use; whilst in many, particularly in the freshly infected cases, the patients suffered much more from colic and tenesmus as a result of the injection. The criticism of his results by Menk is to the effect that the menstruum was too small in quantity and the concentration too great. In 1922 Kuenen published details of four cases all cured by Yatren given by the mouth in doses of 3 g. daily for 8–14 days. In the only paper on the subject in English, Gordon notes two cases treated by lavage which relapsed in a short time; the doses were those originally recommended by Mühlens and Menk. Recently a considerable amount of literature has accumulated round the subject, of which a number of references will be given at the end of this paper.

During the last six months we have had the opportunity of treating four typical cases of amœbic dysentery of different degrees of severity with this drug. We make a special point of stating that diagnosis and treatment have been controlled by sigmoidoscopic examination, a method which is more reliable than stool examination alone.

Clinical Reports.

The following are brief details of these cases.

CASE 1.—Ex-soldier, Indian infection; five months' duration; acute symptoms. Loss of 4 st. in weight (actual weight 9 st. 2 lb.). Stools, four to five a day, containing blood, mucus, and very numerous active free *E. histolytica*.

Sigmoidoscopy.—Mucous membrane of rectum appeared as an extensive bleeding ulcerated surface, the intestinal lumen being full of extravasated blood, constituting a picture of the most marked amœbic ulceration yet seen on sigmoidoscopic examination (P. H. M.-B.). General condition of patient poor.

Treatment.—Yatren 2½ per cent. solution; 200 c.cm. by enema daily for five days and then, after a four-day interval, a further similar course (10 treatments) and concurrently Yatren pills (1½ g. daily) for 19 days.

Results.—Entamœbæ disappeared from stools, which became formed and normal within four days. Sigmoidoscopy repeated 23 days after commencement of treatment; former ulcerated areas now appear as non-depressed diffuse granulating patches which do not bleed. No active ulceration seen. General condition much improved. After one month in hospital gained 18¾ lb. in weight. Improvement maintained now for over four months on ordinary diet.

CASE 2.—Ship's cadet. Infection contracted in Mauritius. One and a half years' duration; acute symptoms; loss of 1½ st. in weight; stools four to five a day, diarrhœic, blood and mucus, free active *E. histolytica* in large numbers. Previously treated with injections of emetine, pulv. ipecac., bismuth and opium, &c.

Sigmoidoscopy.—Granular eroded patches in rectum and definite ulceration as far as could be seen. General condition poor.

Treatment.—Yatren 2½ per cent. solution; 200 c.cm. for six days together with Yatren pills (1½ g. daily) for ten days.

Results.—Entamœbæ disappeared from the stools, which became normal on the fifth day. Presence of Yatren demonstrated in urine. Sigmoidoscopy one month after treatment showed a few pin-point submucous hæmorrhages and scanty minute depressions in mucosa at site of former ulcerations; otherwise normal. General condition of patient much improved, gain of 1 st. in weight. Stools have been examined on five occasions during the last four and a half months since his discharge; general good health maintained; stools normal in number and consistency; no entamœbæ or cysts.

CASE 3.—Colonial official. Nigerian infection; two years' duration; acute symptoms off and on for one year; recently passed through an attack of amœbic hepatitis. Loss of 3½ st. in weight. Stools five a day with blood and mucus and active free *E. histolytica*.

Sigmoidoscopy.—Typical diamond-shaped amœbic ulceration of rectum extending to anus. General condition of patient poor.

Previously Treated.—In hospital on two occasions for same condition. Had received 42 injections of emetine (gr. 1 each), also 90 gr. of emetine in Nigeria; 72 gr. of E.B.I. (two courses); 52 gr. of E.P.I. and other drugs. On each occasion relapse occurred with passage of typical stools within three weeks.

Present Treatment.—Yatren 4 per cent. solution, 200 c.cm. by enema daily for ten days (i.e., 80 g. of Yatren) together with 1½ g. by mouth daily in pill form for three weeks.

Result.—Remarkable improvement in general condition: gained 2 st. in weight within six weeks of cessation of treatment; states "Since course of Yatren I feel an entirely different person." Stools one daily, formed, and on 11 examinations in two months after cessation of treatment were negative for amœbæ or cysts. Has now returned to Nigeria in good health.

CASE 4.—Business man. Infection in Cape Verde Islands: 2½ years' duration; acute relapses from time to time during that period. Acute symptoms on admission. Loss of weight about 1 st.

Stools.—Diarrhœic, two a day, blood and mucus, free active *E. histolytica*.

Previous Treatments.—34 gr. of emetine; 16 gr. of E.P.I., 1 g. of N.A.B., and potassium permanganate lavages.

Present Treatment.—Yatren 2½ per cent. solution; 200 c.cm. for six days.

Sigmoidoscopy.—At end of treatment showed healing and granular patches in rectum.

Gain of weight 9 lb. during treatment; general improvement. Six weeks after cessation of treatment: no acute symptoms, but cysts of *E. histolytica* were found on examination of stool. Course of E.B.I. subsequently given with resultant disappearances of cysts. Good health and improvement maintained for last three months.

Summary.

The results may be summarised thus. The first three cases may be considered as uniformly satisfactory, whilst the fourth is less so, but was only incompletely treated with Yatren, the eradication of the infection being subsequently brought about by E.B.I. To those who have studied the details of the above protocols, we would like to point out that the rapidity with which Yatren acts in the acute stage of the disease is remarkable, amœbæ being apparently destroyed in four days after the injection of Yatren by enema.

In our opinion, in order to get the maximum effects, the drug has to be administered per rectum, as well as by mouth. To do this successfully, the bowel has to be previously washed out with a 2 per cent. solution of sodium bicarbonate about one-quarter of an hour before the injection of Yatren, which must be done slowly by means of a funnel and tube. The solution is then retained as long as possible and then voided. In our cases the average time of retention was about eight hours, occasionally as long as 12 hours. No toxic disturbances appear to be produced by the absorption of the drug.

Yatren is said, by many writers on the subject (Mühlens and Menk, and others), to produce a specific diarrhœa, but in cases of amœbic dysentery we have not encountered this phenomenon, though in other bowel conditions, such as ulcerative colitis and chronic bacillary dysentery in which we have also given it a trial, it readily does so.

Conclusions.

Yatren is of definite therapeutic value in the treatment of amœbic dysentery. Our cases are limited in number, but were all very typical examples of the disease. The results have been most gratifying and are apparently permanent. From the patient's point of view Yatren therapy is more pleasant than any yet evolved, the toxic effect being almost negligible, and there being no necessity to restrict the patient's diet unduly. As the drug is not nauseating our patients have been on a diet of fish, eggs, milk and milk puddings, and toast throughout their course of treatment. (Case 3.)

NOTE ON TREATMENT OF CASES WITH STOVARSOL.

One great difficulty in the effective treatment of amœbiasis is the chronic cyst-passer, or the man who continues to excrete cysts of *E. histolytica* subsequent

to the cessation of acute symptoms. For this purpose we have recently been exhibiting tablets of stovarsol, as recommended by Marchoux. This drug is given in 4-gr. tablet by the mouth, and has been used in the treatment of syphilis; it is an acetyl-oxy-amino-phenyl compound of arsinic acid. A considerable amount of literature has accumulated round this drug, and it appears to be especially adapted for the symptomless cyst-passer who cannot, or will not, undergo a drastic course of E.B.I. treatment. One tablet of the drug is taken after breakfast daily for 14 consecutive days in two courses with an interval of a week's duration between them, so as to avoid any possible manifestation of arsenical intoxication. Two medical officers, who were cyst-passers, have been treated in this manner recently. The cysts disappeared from the stools after the first week of treatment, and we concluded that the use of stovarsol as an after-treatment is to be recommended, its value being probably due to its tonic effects.

Quite recently we have had the experience of two good cases of relapsing amœbic dysentery, who proved to be particularly resistant to E.B.I., so that their eventual recovery may be ascribed to stovarsol.

CASE 1.—The patient had been under observation for 2½ years. Had had four attacks of acute amœbic dysentery including one relapse with hepatitis. His treatments had consisted of five courses of E.B.I. of 36 gr. each; two courses of E.P.I., and over 100 gr. of emetine. During his last relapse he was exceedingly ill and lost over 1 st. in weight. Since October, 1924, he has taken stovarsol in two courses of 8 gr. daily. During the recent period of observation, since the beginning of 1925, his health has much improved, his weight has increased by 42 lb., and his stools are normal and consistently negative for amœbæ and cysts.

CASE 2.—Infection contracted 1922 in Java, where he was treated with emetine, E.B.I., and ipecacuanha. In England in June, 1924, an acute relapse occurred for which he was treated with 24 gr. of E.B.I.; relapsed again four months later, and he was then given stovarsol in large doses of 12 gr. daily for 14 days and subsequently 1 tablet daily for two months. Since then he has been free of symptoms, the stools have been examined at intervals on five occasions, and when last seen in May, 1925, was in good health and has regained his normal physical condition.

Conclusions.

We may thus regard stovarsol as an adjuvant of considerable value in the treatment of amœbiasis. We have no evidence that it acts as a direct amœbicide, but it has a definite therapeutic value in the chronic stage of the disease, and may be recommended in those cases which are resistant to or intolerant to emetine and its compounds. As toxic symptoms due to absorption of arsenic are apt to occur, the dose of 2 tablets daily (gr. viii.) for one week, or 1 tablet daily (gr. iv.) for 14 days, should not be exceeded.

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BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT BATH.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

THIS Section met on three days under the presidency of Sir Maurice Craig.

WEDNESDAY, JULY 22ND.

Causation and Symptomatology of Multiple Neuritis.

In opening a discussion on this subject, Dr. T. Grainger Stewart (London) defined cases of multiple neuritis as "those in which, as the result of a general cause—toxic, infectious, or metabolic—the symptoms present pointed to a more or less simultaneous affection of many of the peripheral nerves, or of their associated peripheral neurones." By this definition all cases of neuritis directly due to local traumatism or compression were excluded, but not those in which the neuritis arose as the result of the general action of a toxin, developed locally in connexion with a local lesion. Further, it permitted the inclusion of cases in which the peripheral neurones, rather than the peripheral nerves proper, were involved. Dr. Grainger Stewart considered it quite impracticable in the present state of our knowledge to attempt to classify multiple neuritis on any other than an ætiological basis, as although the clinical picture in certain forms of multiple neuritis was distinctive, in the majority of cases no clinical differentiation was possible. He would, therefore, classify the different forms as follows:—

(A) *Exogenous Poisons.*—Lead, arsenic, mercury, &c.; alcohol, carbon monoxide, carbon bisulphide, serum disease, &c.

(B) *Endogenous Toxins.*—(1) Metabolic: Diabetes, beriberi, hæmatoporphyrinuria, and during pregnancy. (2) Cachectic: Malignant disease, senile, chronic anæmia, &c. (3) Infective: (*a*) In association with acute infective fevers, &c.—typhoid, paratyphoid, &c.; tubercle, syphilis, &c. (*b*) In certain epidemics—e.g., influenza. (*c*) Infective disease in which the neuritis was an essential part of the clinical picture—uveo-parotitic paralysis, pink disease. (*d*) Infections in which the toxin had a special affinity for the nervous system—e.g., diphtheria. (*e*) In acute, subacute, or chronic infections whose incidence was chiefly on the nervous system—acute toxic polyneuritis, acute febrile polyneuritis, acute infective polyneuritis, Landry's paralysis, and recurrent multiple neuritis.

(C) *Multiple Neuritis of Obscure Origin.*—Rheumatic.

(D) *Local Infections of Nerves.*—Leprosy, interstitial hypertrophic neuritis: (1) juvenile (Dejerine-Sottas), and (2) adult (Dide and Courjon).

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The two principal factors which determined the mode of onset and the distribution of the symptoms were: (1) the selective action of the poison, and (2) the distribution of the poison within the nervous system. It was known that the nervous system had the property of fixing certain toxins, such as those of tubercle, diphtheria, and tetanus, owing to a special chemical affinity. The distribution of the toxin was also influenced by the selective factor, and its incidence was determined in the first place by the paths along which the toxin reached the nervous system. There were two such paths: (1) the blood, and (2) the nerves (perineural lymphatics).

In dealing with the various forms of multiple neuritis the opener referred chiefly to three of that group due to exogenous poisons—viz., the neuritis of alcohol, lead, and arsenic. Alcoholic neuritis was now more rare than formerly, and appeared to be more frequent in spirit-drinkers than those addicted to beer. The characteristic features in all cases of alcoholic neuritis were: (1) The severity of the pain and sensory disturbances; (2) the acute tenderness of the nerves and muscles; (3) the tendency for the lower limbs to be affected earlier and more severely; (4) the weakness predominating in the extensor muscles; (5) the rapid onset of contractions and deformities; and (6) the occurrence of mental changes of a typical character. The latter—known as "Korsakow's psychosis"—consisted in an amnesia for recent events combined with a disorientation in space and time. With regard to lead neuritis, the palsy was only one of the manifestations of lead poisoning. The special features were: (1) The absence of sensory symptoms—apart from muscular cramps; (2) the nerve trunks were not tender; (3) the upper extremities were more affected than the lower and the palsy was often confined to certain groups of muscles; and (4) other evidences of lead poisoning were present—anæmia, colic, blue line in the gums, and vascular changes. Various clinical types had been described, among which were: (1) The antebrachial type (Remak)—seventh cervical, in which the extensors of the wrist and fingers, the extensor and long abductor of the thumb were paralysed, causing drop-wrist. The supinator longus muscle—innervated from the fifth cervical root—generally escaped. (2) The Aran-Duchenne type—eighth cervical and first dorsal—characterised by weakness and wasting of the intrinsic muscles of the hand; and (3) the Duchenne-Erb type—fifth and sixth cervical, in which the dorsal, biceps, brachialis anticus, and supinator longus were chiefly affected. The clinical picture in lead palsy, therefore, pointed to an affection primarily of the lower motor neurone and its segmental or radicular distribution to a neuronic rather than to a neuritic affection. Apart from the occurrence of arsenical poisoning, accidental or intentional, the condition might arise from the prolonged use of arsenic in the treatment of chorea or the severe anæmias. All four extremities were wholly affected, while severe sensory disturbances, trophic changes, falling of hair, hyperkeratosis, and pigmentation were characteristic features.

The most important of the metabolic group was the neuritis of diabetes, and it was present in about 50 per cent. of cases of that disease. Sensory symptoms predominated, and examination showed that the deeper forms of sensation were more affected than the superficial. It was rare to find complete paralysis, but definite muscular weakness was easily demonstrable: the lower extremities were more often affected than the upper. Multiple neuritis had been found in association with most of the well-known varieties of infectious disease, either during the course of illness or supervening upon it. Diphtheria provided us with an example of multiple neuritis occurring in an organismal infection developing its local lesion on a surface of the body, and at the same time evolving a toxin with a selective action on the nervous system. Paralysis occurred in about 20 per cent. of cases. Experiment had shown that antitoxin would prevent paralysis and statistics that no multiple neuritis occurred in those cases in which the bacilli were destroyed early. It was only when the local lesions had been missed or neglected that severe paralysis followed a mild infection.

To the group which he had termed "acute, subacute, and chronic infections with incidence chiefly on the nervous system," Dr. Grainger Stewart proposed to add Landry's paralysis. In Landry's paralysis the onset might be abrupt with ascending paralysis commencing at the periphery of the lower extremities—ascending even to the facial muscles provided death had not resulted from respiratory paralysis. The paralysis was flaccid, painless and sensory disturbances rarely exceeded a mild paræsthesia in the extremities. In some cases the onset was less abrupt and the paralysis might be of a descending type or even appear to spread from the site of onset both upwards and downwards. If we compared this with the descriptions of acute febrile or acute infective polyneuritis given by Bradford, Bashford and Wilson, and by Holmes, we found no material difference. Extending from the toes upwards, the paralysis affected the trunk muscles, arms, and face, the facial palsy—although sometimes of slight degree—being a characteristic feature. Sensory changes had not been marked.

Dr. Grainger Stewart said he had seen several cases of Landry's paralysis and over 20 cases of acute toxic polyneuritis. In some of the latter the diagnosis was based solely upon the development of sensory disturbances 10 to 14 days after the onset of the paralysis; had death occurred before, they would certainly have been accepted as being typical of Landry's original description. Now, in all these cases we had the following resemblances: (1) An acute ascending paralysis of flaccid type with abolition of deep reflexes; (2) a febrile onset; (3) only slight disturbances of sensibility; (4) transient interference with sphincters; (5) absence of mental changes. Cases of recurrent multiple neuritis had been described. The symptoms were predominantly motor, each attack left the patient weaker than before, there was more wasting than was usually found in multiple neuritis, and the attacks occurred without known cause at irregular intervals. In view of all facts, it was no longer possible, he said, to limit our conception of multiple neuritis to one in which the peripheral nerves alone are affected. We should think in terms of neurones, as it was illogical to separate a nerve cell from its fibres; they were essentially one from the point of view of function, and interference with either must, and does, affect both.

Discussion.

Dr. Wilfred Harris (London) commented upon classification and considered that Dr. Grainger Stewart's groups (*c*) and (*d*) would probably fall into either the "Exogenous poison" or the "Endogenous toxin" group. Leprosy did not appear to him to be a cause of multiple neuritis. Korsakow's psychosis also occurred in connexion with neuritis other than that due to alcohol, and multiple neuritis might develop from local septic wounds apart from diphtheria. With regard to the alleged neuritis of serum disease, he thought that such neuritis was more likely to be a result of the infective disease for which the serum was given rather than of the serum itself; during the war, while acting as a tetanus inspector, he had seen many serum-treated cases and had met with no neuritis as a result. Dr. Harris disagreed with Dr. Grainger Stewart that lead neuritis was segmental in distribution; the radial extensors were innervated not from the seventh cervical segment but mainly from the sixth and even the fifth. The Aran-Duchenne type, he considered, was due to chronic anterior poliomyelitis, and, as distinct from wrist-drop, was permanent and incurable.

Dr. W. Johnson (Liverpool) dealt with certain atypical forms of lead neuritis which did not appear to harmonise with the theory of the selective action of the toxin and compelled us to seek an additional explanation. Fatigue might be a contributory factor.

Edinger, of Frankfort, originally advanced the view that in a condition in which toxins are circulating through the system the poisoning effects are liable to occur chiefly in those structures which have been the seat of fatigue. The ordinary painter used a free flexion and extension movement at the wrist in performing his work; the extensors were at a mechanical disadvantage as compared with the flexors and were therefore more susceptible to fatigue. The right arm was more commonly affected, but if the patient were left-handed, then the left arm showed the more marked paralysis. In the occupation known as "puddling" a heavy scraper was used which threw considerable strain on the shoulder muscles. In such cases the upper arm type of lead palsy was the more common.

Dr. F. J. Nattrass (Newcastle-on-Tyne) drew attention to the occasional occurrence in cases of multiple neuritis of enlargement and hardening of the nerves. He had met with two such cases. Portions of the musculo-cutaneous nerve of the leg and the great auricular nerve were examined microscopically; some hundreds of serial sections revealed no anatomical changes beyond some œdema of the nerve sheath. In a longitudinal section of a portion of the great auricular nerve, however, a pre-capillary venule in the adventitial tissue at some distance from the nerve showed perivascular infiltration with large mononuclear cells.

Dr. S. A. Kinnier Wilson (London) agreed with the opener that in many cases the term "multiple neuritis" was a misnomer since changes were found not only in the nerve trunks but also in the nerve cells and muscles. Further, sensory changes might be entirely absent. A better term for such cases was "polyneuronitis." The speaker was not impressed by Edinger's theory of fatigue. He also referred to the condition known as "central neuritis"—really a neuronitis—in which the medullated fibres of the central nervous system were affected.

Dr. C. Worster-Drought (London) referred to the occasional occurrence of nystagmus in polyneuritis, and particularly in the alcoholic form; a case of the latter disease showing pronounced nystagmus was under his care at the present time. With regard to a question raised by Dr. Grainger Stewart, the speaker had seen the neuritis of diabetes improve pari passu with improvement in the diabetic symptoms both on dietetic treatment alone and with insulin. Syphilitic neuritis was an interesting though somewhat rare form of polyneuritis—or more strictly, polyneuronitis, since sensory changes were usually absent. The condition, when present, usually appeared late in the secondary stage and with suitable treatment the prognosis was exceedingly good. Dr. Worster-Drought also described a case of recurrent multiple neuritis which he had observed over a period of two years; the onset and each recurrence was ushered in by acute gastro-enteritic symptoms The case had been fully investigated from the clinico-pathological standpoint but, apart from certain blood-cell changes, with negative results.

Dr. A. F. Hurst (New Lodge Clinic) raised the question of latent peripheral neuritis. Absent ankle-jerks, he considered, might be the only sign of alcoholism. Such cases could be distinguished from early tabes dorsalis, as in the latter disease the calves were analgesic, whereas in alcoholic neuritis they were very tender. It was very rare to find alcoholic neuritis and cirrhosis of the liver coexisting; indeed, they appeared mutually exclusive. In alcoholics who died of cardiac failure it was often surprising what few changes were found in the heart muscle on post-mortem examination; the cardiac disorder, he considered, was largely due to a disturbance of the vagus nerve. In certain cases of beri-beri Dr. Hurst considered that in addition to vitamin deficiency as an ætiological factor there was an infective agent. In the Gallipoli campaign, for instance, beri-beri was often accompanied by jaundice; in these cases the duodenum was found post mortem to show evidence of inflammation.

In the unavoidable absence of Dr. J. S. Collier (London) his observations were read by Dr. E. Mapother. Dr. Collier considered it peculiarly fitting that Dr. Grainger Stewart should open the discussion on multiple neuritis, since it was his father—Sir Thomas Grainger Stewart—who wrote the first English monograph on the subject 45 years ago. Dr. Collier also mentioned the occurrence of nystagmus in polyneuritis, and thought the phenomenon was due to involvement of the cerebellar neurones. The lesions of multiple neuritis were not necessarily symmetrical; he had seen cases of both lead and alcoholic neuritis which were strictly unilateral. He was glad to see Landry's paralysis placed in its proper position as a polyneuritis by Dr. Grainger Stewart. Lastly, Dr. Collier referred to cases of neuritis due to the too enthusiastic and unduly prolonged administration of bacterial vaccines.

The President of the Section observed that it was important to examine the mental aspect as well as the physical in many forms of peripheral neuritis; minor mental changes in such cases often passed unrecognised. He pleaded for just as much care to be devoted to the mental examination as was given to the motor and sensory signs.

Prof. Edwin Bramwell (Edinburgh) emphasised the fact that in many cases of acute polyneuritis the ætiology was most obscure. In many cases, he believed, there was more than one active ætiological factor—e.g., an attack of influenza might determine the onset of neuritis in a victim of lead poisoning. He also referred to the occurrence of polyneuritis in association with hyperemesis gravidarum and described a case which showed the usual signs of multiple neuritis together with nystagmus and bilateral facial paralysis; later a Korsakow's psychosis developed. In the causation of some obscure cases there might be a food factor, the patient being unable to digest and absorb the necessary vitamins.

THURSDAY, JULY 23RD.

The Treatment of Insomnia.

Dr. Robert Hutchison (London), opening a discussion on this subject, said that for the purposes of treatment he divided cases of insomnia into two groups, (1) secondary, and (2) primary. In the secondary group the insomnia was the result of some physical discomfort—such as pain, dyspnœa, cough, flatulence, &c. The primary or intrinsic cases arose either from some psychical discomfort (worry, anxiety, &c.) or they were originally secondary cases, in which the physical cause having disappeared, the insomnia persisted largely as the result of auto-suggestion.

1. *Secondary Insomnia.*—The treatment of the secondary cases was primarily that of the associated disease. There could be no objection to the use of hypnotics in these cases from the fear of establishing a habit, as we were usually dealing with a disease of short duration in which the promotion of sleep was essential for the maintenance of the patient's strength and powers of resistance. When the insomnia was due to pain, analgesic drugs—aspirin and pyramidon—should be tried before morphine. In sleeplessness from dyspnœa, the hypnotic used depended upon the cause of the dyspnœa. For cardiac cases there was no drug to equal morphine, but in dyspnœa of pulmonary origin—e.g., bronchitis—it was contra-indicated. In such cases opium might be given in the form of Dover's powder; strychnine and oxygen were useful adjuvants. Pneumonia was a disease in which insomnia often resulted from a variety of factors—pain, fever, cough, dyspnœa, and toxæmia all playing a part. In the early stages—before the fifth day—morphine was much the most effective agent for promoting sleep; after the fifth day, however, it was rarely safe to use morphine, and opinions differed as to the most suitable hypnotic. Chloral was effective, and in Dr. Hutchison's opinion the depressing effect of this drug on the circulation had been exaggerated. Paraldehyde was safe but uncertain in its action; a dose of at least 2 drachms was required to produce an effect. For allaying

a cough causing insomnia, codeine was probably the best remedy. In the sleeplessness of uræmia, morphine was most effective and the common prejudice against its use in renal cases he considered unjustified.

2. With regard to *primary insomnia*, it was as well at the outset to make sure that the case was one of primary insomnia and not one of secondary insomnia in which some physical discomfort—such as dyspepsia, flatulence, or constipation—had been overlooked. Flatulence, either in the stomach or colon, was specially liable to prevent sleep; it was worth while, therefore, when no psychical cause for the insomnia was evident, to try the effect of an alkaline carminative draught at bed-time. In primary insomnia, one's first duty was to inquire into causes of mental discomfort. As the elucidation and removal of an anxiety state might take considerable time, the first task was to try to get the patient to adopt the right mental attitude to the symptom. As most sufferers from insomnia exaggerated in their own minds the effects of not sleeping, one should explain that there was no fear of his either dying from insomnia or of going mad as a result of it. Also, it should be pointed out that health could be maintained on a much smaller allowance of sleep than most people took and that rest and muscular relaxation were to a large extent a substitute for it. Unless the insomnia had resulted from mental overwork—and this, in the absence of coexisting worry, was a rare cause—when a holiday might effect a rapid cure, Dr. Hutchison believed it best to attempt to cure the insomnia in the environment in which it arose. Institutional treatment, however, had its advantages in cases requiring prolonged psychotherapy and, of course, in all psychoses.

With regard to drugs in the treatment of insomnia, the speaker believed it cant to say that hypnotics should only be used as a last resort and that the fear of establishing a habit was a bugbear; the possibility of the insomnia becoming a habit was a much more real danger. The removal of an anxiety state or the resolution of a conflict took time, and meanwhile, especially if the insomnia was becoming absolute, artificial sleep must be induced. As we could not afford to fail without making the patient worse, it was wise to begin with a hypnotic and dose rather more powerful than was really necessary. The bromides were, therefore, only indicated in the mildest cases; bromural and adalin were better for the less severe insomnias. Of more potent drugs, veronal or medinal (sodium-veronal) in 7½ grain doses would meet most indications. Chloral had fallen too much into disuse; it was wise to avoid it in cases of myocardial degeneration, but otherwise Dr. Hutchison believed it quite safe. Trional, from its delayed action, was specially indicated in those cases in which the patient was awake only during the latter part of the night (the so-called internocturnal insomnia). Luminal was unnecessarily powerful for use unless in exceptional circumstances, and morphine should never be given for primary insomnia outside a mental hospital.

Dr. Harry Campbell (London) defined insomnia as the "inability to enjoy a sufficiency of sleep under moderately satisfactory conditions." In the treatment of all cases of insomnia an attempt must be made to raise the level of the general health of the patient. Tranquillity of mind was essential to combat primary insomnia; the patient should endeavour to cultivate the idea that he is really going to sleep. Reading in bed, so long as it did not excite, often promoted sleep, and there were individuals who habitually read in bed until drowsiness compelled them to put out the light. Sources of irritation—cold feet, pruritus, nasal obstruction—which often interfered with sleep, should be sought for and treated. The bedroom should be dark, quiet, and well ventilated, and the bed placed away from the wall. In cases of high blood pressure the pillow should be high, but when the pressure was not supernormal and the patient was otherwise healthy, a low pillow was best. Open-air exercise was conducive to sleep and a warm bath at bed-time, with the addition of a little mustard, was often helpful. As regards climate, high altitudes were unsuitable for bad sleepers; for most patients a low altitude and a relaxing climate were preferable.

Dr. H. Devine (Portsmouth) said that in the insomnia of the acute psychoses the use of powerful sedatives which stupefied the patient and which had been described as "chemical restraint" was steadily growing into disfavour. Endeavour should be made to assist Nature to bring about a cure by careful nursing and medical treatment—attention to digestion and the state of the bowels, frequent feeding with liquid diet, &c. Direct attempts should be made to promote sleep by sponging, hot packs, or if the condition permitted, prolonged baths. Hypnotics were often necessary, but they should be used as sparingly as possible and in conjunction with such methods as described above. The aim was not to treat the insomnia itself but rather the morbid process in the organism responsible for its occurrence. The insomnia of psychoses was essentially a secondary insomnia in the sense that it was a reaction to a morbid and sensitive state of the organism. There was a practical value in regarding all cases of insomnia as the outward expression of a mal-functioning organism.

Dr. C. P. Symonds (London) dealt with certain physiological factors underlying the function of sleep. The causes of insomnia due to an increase in the flow of stimuli to the cerebral cortex had, on the physical side, been dealt with by the opener of the discussion. On the psychical side it was unpleasant emotions, such as anxiety and fear, which readily prevented sleep. He considered that the principles guiding the use of hypnotics in cases of neurosis should be (1) not to continue drugs for more than a week or so without openly reducing the dose and observing the result, and (2) never to exhibit the same hypnotic for more than three nights in succession. A habit which was valuable in some cases was that of muscular relaxation. With training, the ability to relax could be developed so that a patient might learn to relax all his limbs in turn and finally together. Dr. Symonds was doubtful regarding the wisdom of allowing patients to read or play "patience" in order to pass the time; the practice might tend towards a habit of wakefulness.

Dr. E. I. Spriggs (Ruthin Castle) considered that the insomnia of overworked business men was best relieved by advising the patient to spend one or two hours in the open air each day, or at least every other day. A regular allowance of fresh air was most important for the individual working indoors. In nervous and excitable patients, a good plan for avoiding insomnia was to persuade them to take regular rest after the mid-day meal.

Dr. D. Stone (Northampton) said that the posture adopted in bed was important. A sleepless patient—especially one with digestive trouble—should sleep on the right side, as in that position it was easier for the stomach to empty. It was not wise to go to bed on an empty stomach; a moderate meal was advisable. From personal experience in general practice, he thought paraldehyde was the best hypnotic for routine use—1 drachm was usually sufficient.

Dr. W. J. Smyth (Bournemouth) spoke of the value of hyoscine in asylum practice. In adolescents insomnia was frequently due to some anxiety or fear and was usually only remedied finally by removal of the cause. In his experience medinal was the hypnotic that gave the best results in obstinate insomnia.

Dr. W. A. Potts (Birmingham) drew attention to the value of combining hyoscine with morphine in cases in which drug treatment was necessary; the combination enabled a smaller and safer dose of each drug to be used. In certain selected cases alcohol was valuable, and even a dose of "blue pill" was often efficacious.

Dr. C. Mortlock-Brown (Braunton) pleaded for further research in the physiology of sleep and considered that hypnotics should be used only as a last resort.

Dr. Mackenzie Wallis (London) spoke of certain experiments he had carried out regarding the relative toxicity of certain hypnotics. He had found that sulphonal, veronal, and medinal (sodium-veronal) in ordinary doses had no effect whatever on the functional activity of the liver and kidneys, nor was there any effect on general metabolism. All three drugs were rapidly excreted and showed no evidence of cumulative action.

Dr. T. A. Ross (Penshurst) considered that the insomnias termed primary were in reality secondary, but that the cause was less obvious. He agreed that it was sometimes necessary to give hypnotics in cases of neurosis, but believed that the practice tended to inhibit the process of psychological investigation.

Dr. Woods Hutchinson (California, U.S.A.) said that insomnia depended upon the testimony of the patient, and the patient was usually incorrect in his statements, since no individual could testify as to how long he slept. The aim should be to try to make the patient physically fit in all respects and to persuade him to forget his insomnia.

Dr. R. Whittington (Hove) believed that the nature of the treatment adopted largely depended upon the temperament of the patient; one form of treatment might suit one individual but not another. He would have wished to hear more of hypnotism and suggestion in the treatment of insomnia.

Dr. H. Crichton-Miller (London) had found that dyspepsia was often a basis on which insomnia developed. In many cases the circulation was also at fault. He did not consider that the exhibition of hypnotics hindered a psychological investigation.

The President of the Section, in bringing the discussion to a close, said one had to think of the patient first and that experience had taught him that insomnia was often the key position to many graver conditions that might arise later. Physiologists had shown that the repair of fatigued tissue took place only during sleep. In his opinion sleeplessness should be relieved in its earliest stage—even in children. The danger of habit-formation was much exaggerated. The drug he favoured most was medinal; Dr. Mackenzie Wallis's observations constituted a good answer to the fostering of prejudice against such a sedative. He considered that if a particular hypnotic proved suitable, it was a great mistake to change it.

FRIDAY, JULY 24TH.

The Prophylaxis of Mental Disorder.

Sir Humphry Rolleston, in opening a discussion on this subject, stated that such a discussion, though in a special section, should be on very broad lines, for it dealt with the highest reaction of the human organism—in fact, with its reactions as a whole, whereas in other branches of medicine, one organ or system of organs chiefly attracted our attention. The public, as well as the medical profession, required education as to the way in which mental abnormalities should be regarded, and should be impressed with the commonplace that prevention was better and cheaper than cure, so that the earliest departures from the normal should at once be communicated to the doctor and remedial measures started without delay. The measures appropriate for the prevention of mental disorder were necessarily determined by the numerous forms of mental unsoundness. The multiplicity of the causes—hereditary, environmental, physical or bodily, and purely psychological—complicated the problem of prevention. Heredity and environment were closely interwoven in the causation of mental disorder as disposing and exciting factors respectively; the disease was the morbid reaction resulting from a complete set of external agents stimulating an inborn low margin of physiological resistance. The special form of nervous disorder was not inherited as such, but there was a low state of vitality. Although, generally speaking, more could be done in the way of modifying the environmental conditions—viz., by all that is included in the term "mental hygiene"—measures to counteract gross hereditary disease, such as syphilis and cretinism, must not be neglected. Half the cases of mental disorder had been ascribed to hereditary factors. As a means of prevention this factor necessarily carried with it the difficult subjects of eugenics, sterilisation of the defective, and birth control. We might wisely hesitate before advocating strict eugenic measures of breeding, which, if carried to their logical conclusion, might seriously impair the future progress of the race; for if the inborn tendency to variation, which is responsible both for mental weakness and for intellectual ability, were thus removed, a dead level of standardised men, like "Robots," might conceivably result. To a limited extent the Mental Deficiency Act (1914) had met the question of sterilisation of the mentally defective by diminishing the propagation of the handicapped child. Birth control was less drastic and difficult than the standardised propagation of the human race; it was widely practised, though far more often among those whose offspring would be of value to the race than among the very poor. The arguments against this practice were the risk of a falling population and the moral one that promiscuity would be favoured.

While fully recognising the indubitable influence of heredity, there was the opposite and more or less mechanistic conception that man's actions were determined by his response and adaptation to environmental stimuli. What was often assumed to be hereditary might really be acquired in early youth as the result of family environment and irresistible imitation. An inherited tendency might remain latent unless and until some stress was brought to bear on the individual, who then manifested symptoms of mental disorder, when an absolutely normal person would escape. The stress which was the exciting factor acted in virtue of the psychopathic predisposition, and might be: (1) Physical—trauma, infection, toxic factors, unhealthy environment, unsuitable diet; or (2) psychical—worry, emotional strain, overwork. Chronic infective foci and the resulting toxæmia, by diminishing the resistance of the body and by producing degenerative changes in the nervous and endocrine systems, constituted an important factor both in disposing to and even determining mental disorder. Auto-intoxication due to oral, tonsillar, and intestinal infection was sometimes an obvious factor. Responsible focal infections, especially disease of the accessory nasal sinuses, might remain latent and escape detection. At the New Jersey State Hospital, Trenton, the number of discharges increased from 37 to 85 per cent. after removal of oral and tonsillar infections (H. A. Cotton, 1923). The effects of alcoholism and syphilis and the means of obviating these factors were well recognised. With regard to epidemic encephalitis, more information was needed as to the prevalence of carriers and their detection, the problems of immunisation, and of specific curative treatment. A further interesting question was the possible responsibility of primary deficiency of the endocrine elements of gonads for mental disorder. Sir Frederick Mott had shown that changes in the sex glands occurred in dementia præcox, but it was difficult to disprove the view that the endocrine maldevelopment was concurrent and part of the general bodily arrest of development or precocious degeneration. Endocrine deficiency of congenital origin—e.g., cretinism—might to some extent be prevented by antenatal treatment and environmental precautions. Overpressure in schools on clever boys likely to gain scholarships was a widely recognised but somewhat neglected danger, and not infrequently led to mental sterility in later life. Precocious able boys would, of course, be in forms with boys considerably older, and therefore would be likely to share the same hours of sleep, whereas they required more on account of both their more tender years and their mental activity. Sufficient sleep and rest in the prevention of mental strain and breakdown were most important. Boys were not sent to school to earn testimonials to the transient success of a forcing system. The senseless and harmful punishment of writing out

hundreds of lines and keeping boys in after school hours should be regarded as relics of barbarism.

The speaker pointed out that the possibilities included in mental hygiene were extremely numerous; they concerned the home conditions and influences bearing on young children and the education in this respect of the parents: for the impression made by environment on the young mind was of the utmost importance. Mental hygiene was the first line of defence in the prevention of mental disorder, and its want or failure was shown by the need for early treatment in psychiatric clinics, which in their turn should preserve many patients from the necessity of having to enter mental hospitals. Early treatment in psychiatric clinics attached to general hospitals had many advantages; the education of the public to the recognition that mental disorder was intimately connected with bodily disease and not a distinct and mysterious condition; from the patient's point of view the avoidance of the stigma attaching in the public mind to residence in a mental hospital and especially certification; the provision of a much more satisfactory means of educating students, not only in mental disorders, but also in the understanding of the psychological aspects of everyday practice, &c. The prevailing note in the case of early and recoverable patients should be sympathetic conciliation rather than the forbidding coercion—cheerfulness and helpfulness instead of severity and repression.

Dr. Helen Boyle (Hove) agreed that the hereditary factor was difficult to control for fear of producing a race of individuals of dead uniformity. It should be remembered that many of those who have contributed largely to the arts were mentally unstable. Also there was no definite model at which to aim—nobody had yet seen the perfect man, and perfect physical formation did not necessarily mean good mental development. As regards birth control, at present the practice was only adopted by intelligent and thrifty people, and thus those most needed tended to be exterminated. Dr. Boyle also laid great stress upon the correct upbringing of children.

Dr. Bernard Hart (London) said that cases of mental disorder could be divided into two large groups: (1) Physiogenic, which included those cases ascribed to physical causes—toxic, endocrine, heredity, and other physical factors; and (2) psychogenic—a group much subdivided and varying with the different analytical schools of Freud, Adler, and Jung. It was difficult indeed to find a single factor in the ætiology of these cases on which uniformity of opinion could be based. Consequently, in devising preventive measures great care was necessary, and our fragmentary knowledge of ætiology had to be improved. It was important to recognise that in mental disorders there were no disease-entities; what occurred was a reaction of the whole organism to its internal and external stresses; while we clung to the disease-entity idea, it was difficult to harmonise the different ætiological factors. Dr. Hart pleaded for tolerance between the different schools of psychological thought and deplored the present lack of suitable institutional accommodation for psychoneurotics.

Dr. E. Mapother (London) considered it necessary carefully to distinguish between the early treatment and the prevention of mental disorder—that is, between measures taken after the appearance of the earliest symptoms and, on the other hand, measures designed to prevent the occurrence of even first symptoms. This distinction was important because demands for public help towards early treatment could reasonably be based on moderate claims regarding our powers, while appeals in aid of prevention should be founded on our almost total ignorance of and impotence in the prophylaxis of mental disorder.

Dr. Ross said that it was most important to get medical students more interested in minor mental maladies such as the psychoneuroses. At present they were interested in physical illness only, and, in consequence, when they became practitioners and met such cases they did not know how to handle them; they either fussed over them unduly or neglected them. It was not possible for specialists or institutions to undertake the entire care and treatment of all psychoneurotics; they were too numerous and their cases were too prolonged. The patients needed support for a long time, and the bulk of this support should be given by the general practitioner.

Dr. Potts could not accept entirely the somewhat pessimistic attitude of Dr. Hart and Dr. Mapother, although he agreed that more detailed investigation and more knowledge were necessary. There was universal agreement that infections were existing factors and must be dealt with. Following this, if necessary, some form of psychotherapy should be employed. His idea was that the chief places for the prevention of mental disorder were the antenatal clinic and the nursery.

Dr. P. Watson-Williams (Bristol) dealt with the influence of toxæmia as a cause of mental disorder. He considered that by the detection and elimination of focal or other infections the occurrence of mental unsoundness could be prevented, relieved, or absolutely cured. He had seen elimination of sepsis in the nose, throat, or ear lead to the relief of neurasthenia, depression, and even delusional insanity. It was particularly latent or cryptogenic foci that were prone to cause chronic toxæmic conditions; where there is an obvious purulent discharge there was much local reaction and little tendency to toxæmia, but when the infection was associated with but little discharge, and that non-purulent or only opalescent and difficult to observe, toxæmic symptoms were more prone to arise. Hence a well-marked pyorrhœa alveolaris was less dangerous than the apical granuloma of latent dental sepsis.

Dr. Crichton-Miller agreed that the elimination of foci of infection was most important; a toxic factor might not be the entire cause, but it was the easiest to handle. He also described the blood-cell changes found in certain neuropaths.

Dr. C. A. Mortlock-Brown appeared to consider the present generation degenerate and maintained that self-control was better than birth-control. She also advocated the appointment of medical women to the Board of Control.

Dr. R. N. Craig (Torquay) gave details of two psychiatric clinics, attached to general hospitals, with which he was associated. There had been great difficulty in starting them owing to prejudice and opposition from even medical men, but the success attained by the clinics clearly showed that there was a demand for them.

The President of the Section said that over and over again he had seen mental factors neglected in patients at general hospitals; the patient was, in fact, treated in one respect (the physical) and neglected in another (the psychical). Cases of mental disorder due to toxic foci were frequently overlooked. He would deplore any attempt to eliminate the hypersensitive individual—the person who reacts quickly is often the most intellectual or the most successful in life. Unfortunately they reacted equally easily to environment and toxins. Overwork meant over-stimulation, and fatigued tissue was more likely to become infected than healthy tissue.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—In their annual report the committee of management state that it is "of vital importance that more beds should immediately be provided at the country branch," and King Edward's Fund has been asked to approve of plans for an additional 200 beds, estimated to cost at least £50,000. At the same time the out-patients' department has become "hopelessly inadequate," the attendances during the past year having exceeded 71,000. A new department, with nurses' home, resident medical officers' quarters, and workshops, will cost another £50,000, a total of £100,000, of which only £30,000 is in hand. Every branch of the work has again increased, and there is an adverse balance amounting, happily, to only £1500, as against more than treble that amount in 1923.

Reviews and Notices of Books.

HISTORY OF MEDICINE.

Proceedings of the Third International Congress of the History of Medicine. Antwerp: De Vlijt. Pp. 320. 21*s*.

THE fourth of this series of congresses has just taken place in Geneva.[1] The volume under review contains the contributions presented to the Congress which met in London in July, 1922, and was attended by some 150 delegates from 16 countries. In the epidemic section, Dr. Tricot-Royer contributes an analysis of the orders of the town council of Antwerp against plagues in the sixteenth and seventeenth centuries, and also a description of the sixteenth century leper house of Hérenthals and its documents. M. Jeanselme's paper shows the connexion of plague with the flood, famine, and earthquake which precede it, and Prof. Sir W. Simpson urges renewed attack on the problems of endemic disease in our own day. Dr. Wickersheimer gives an account of the Black Plague as it affected and was dealt with in Strasbourg in 1349, and of a "regimen" dating from this time; while Dr. R. Neveu describes the plagues of Tuscany in the fourteenth and fifteenth centuries, with an analysis of the reasons for the long-continued infections. Sir W. J. Collins gives a résumé of the work of Sir Edwin Chadwick, and Miss M. C. Buer discusses the decrease in epidemic disease in this country between 1750 and 1830, ascribing it to the improvement in medical science and popular hygiene accompanying the industrial revolution. In the anatomical section Dr. Ricardo Jorge's paper deals with the renaissance of anatomy and medicine in Portugal; MM. Laignel-Lavastine and Livet discuss the part played by symbolism in anatomy, with reference to the rules of divination, the teachings of astrological medicine, and the idea of correspondence between macrocosm and microcosm; Dr. J. G. de Lint publishes two new anatomical "flying sheets" and a fragment of an obstetric MS.; and Dr. E. T. Withington and Mr. Donald Campbell contribute papers on the anatomical writings of Galen. Prof. Ménétrier attempts to rescue the reputation of anatomists by citing instances of their humanity toward "subjects" handed over to them imperfectly executed and susceptible of restoration to life. Dr. V. H. Turkomian discusses the knowledge of anatomy possessed by the ancient Armenians, and also shows that that country was a pioneer centre for propagation of the practice of inoculation for small-pox. M. Fosseyeux's paper describes the anatomical studies of Déscartes, and MM. M. Villaret and F. Moutier discuss plagiarism in anatomical illustrations during the sixteenth century. Dr. K. Lander deals with the anatomical studies of women before the nineteenth century. Mr. T. W. Parry describes prehistoric trephination in Great Britain. In the pharmacy section Dr. M. A. Van Andel describes the history of human fat as a medicament, and Dr. Van Schevensteen the use of remedies taken from the human body in the treatment of eye diseases. Dr. P. Dorveaux contributes a study of the seventeenth-century apothecary, Le Febvre Nicaise, and Mr. J. P. Gilmour sketches the history of pharmacy in the British Isles. M. C. H. Fialon outlines the statutes of the Master Apothecaries' Corporation of Lyons, and Mr. C. J. S. Thompson gives the history of Hiera Picra. In the veterinary section M. M. Sevilla writes on the "colic" syndrome in the Græco-Roman epoch, Major-General Sir F. Smith publishes an abstract of his paper on English veterinary anatomy from the sixteenth to the eighteenth centuries, and Mr. F. Bullock an abstract of his account of the fifteenth century MS. "Mulomedicina Chironis." M. L. Moulé describes the conditions grouped by ancient writers under the term "Malleus." Among miscellaneous papers are found one by Dr. F. G. Poynton on the early aeronautical work of medical men; a study of Byzantine culinary recipes and ingredients by MM. Jeanselme and Oeconomos; and an account of the use of the Danish amulet "Muskatnuss," by Mr. J. W. S. Johnsson. Of particular interest at the present moment is a description of the psychiatric ideas of Roman jurists by Dr. S. K. Waard. MM. Laignel-Lavastine and J. Vinchon contribute an account of the psychiatric work of Jean Schenck, and M. Jeanselme attributes the degeneration of the Carolingian family to hereditary neuropathic taints. Dr. N. G. Horner presents an amusing seventeenth century journal or daybook which belonged to Dr. John Westover, of Wedmore. Among the portraits published are one of Luis Mercado, physician to the Spanish court in the sixteenth century, and that of a young man, by Moroni, showing an apparatus for drop-foot. Of literary interest are Dr. J. Van Gils's comparison of the doctors of Molière with those delineated by Shaw, and a note by Dr. H. Leclerc on the reference to the "sacred thistle" in *Much Ado About Nothing*. Newly published texts include the preface of a thirteenth century Latin edition of the sixth book of "Epidemics" (Mrs. Singer), an Italian MS. giving a large number of hitherto unknown names of Salernitan doctors (Dr. P. Capparoni), and a treatise on air and winds published in 1642 by Panarolo (Dr. G. Hinsdale). The collection concludes with a paper by Mme. Panayotatou on hygiene and dancing among the ancient Greeks.

The volume may be cordially recommended to those who have a taste for medico-historical hors d'œuvres.

[1] THE LANCET, 1925, ii., 291.

HANDBUCH DER TROPENKRANKHEITEN.

Third edition. Vol. II. By various Authors. Prof. Dr. CARL MENSE, General Editor. Leipzig: Verlag von Johann Ambrosius Barth. 1924. With 306 text figures, 4 black and white and 14 coloured plates. Pp 1019. G.M. 66–70.

THE second part of the new "Mense" is a ponderous volume comprising a vast amount of information upon a great variety of essential tropical diseases and subsidiary subjects. As has been customary in previous editions, the bibliography is remarkably complete. But the most important diseases do not appear to be arranged in any logical order; thus we have leprosy, undulant fever, cholera, psittacosis, plague, tsutsugamushi disease, sprue, beri-beri, tropical skin diseases, and those caused by tropical poisons, both of vegetal and animal origin, treated in sequence—a lack of method detracting from the real merits of the work.

The chapter on leprosy by Dr. Georg Sticker, of some 120 pages, includes a history of the disease from the earliest times and is a definite contribution to medical literature. Interesting statistics are given of the present-day distribution of leprosy; in China and the East Indies there are 50 lepers to every 100,000 inhabitants; in Finland, 2; in Egypt, 20; while in the Marquesas islands there are known to be 250 amongst a total of 4000 inhabitants. Dr. Martin Mayer is responsible for a succinct and well-written chapter on undulant fever. In the treatment of this particularly intractable fever attention is directed to the injection of colloidal metals, notably collargol. Cholera, from the pen of Dr. Paul Krause, is mainly remarkable for the chronological table of various cholera epidemics from the year 1817 onwards; the information being wholly derived from Russia from 1914 up to the present time. The various methods of treatment which have from time to time been advocated are given in detail, but no particular line is specially advocated, while the injection of hypertonic salines receives but scanty recognition. Dr. Filippo Rho writes on psittacosis, though it is by no means clear why this somewhat exceptional disease should be included in a treatise on tropical medicine. The article on plague is by Dr. P. C. Flu, of Leyden, and contains a careful description of the bacteriology of the disease, while the attention given to morphology of the various plague-disseminating fleas is noteworthy.

Tsutsugamushi disease, or Japanese river fever, by Dr. M. Miyajima, comes from an authoritative source and is welcome on account of its comparative brevity and the excellence of the illustrations. The story of sprue, by Dr. Hermann Dold, occupies a great deal of space, of which the greater part is taken up by a detailed account of the pathological anatomy. The recital of many pathological items which apparently have no bearing upon the ætiology of the disease renders this section confused and inconclusive. Beri-beri, by Dr. Bernhard Nocht, is an extremely good account of the symptomatology and treatment of this peripheral neuritis; the whole subject of vitamins receiving adequate consideration. Tropical skin diseases, including oriental sore, ainhum, climatic bubo, veldt sore, ulcerating granuloma, and other less well-defined conditions are described by Drs. A. Plehn and Karl Mense, jun. We note that yaws and syphilis in the tropics, illustrated by some characteristic photographs, are also included in this section, though more generally regarded by other writers as being systemic in nature with cutaneous manifestations. The same authors are responsible for mycetoma, tinea umbricata, sporotrichosis, and other fungus diseases.

Poisonous symptoms due to tropical plant poisons are thoroughly discussed by Dr. Rho. Originality and thoroughness of this section make it the most striking contribution in the present volume. Dr. E. S. Faust deals with the analogous conditions produced by animal poisons, including snakes, fishes, reptiles, arthropods, and mollusca.

The general printing and reproduction of the illustrations are, on the whole, good.

AN INDEX OF TREATMENT.

By Various Writers. Ninth edition. Edited by ROBERT HUTCHISON, M.D., F.R.C.P., and JAMES SHERREN, C.B.E., F.R.C.S. Bristol: John Wright and Sons, Ltd. 1925. Pp. 1035. 42s.

AFTER an interval of less than four years the ninth edition of this well-known manual of treatment has been produced. Recent additions to therapeutical knowledge have rendered its issue advisable sooner than was anticipated. Two subjects hitherto omitted appear for the first time—namely, Infective Endocarditis (Sir Thomas Horder) and Spinal Analgesia (Dr. Felix Rood), while additions have been made to the article dealing with the general treatment of tuberculosis. The article on diabetes by Dr. Edmund Spriggs has been rewritten in the light of modern research, but we are glad to say that the same amount of space, or more, is still devoted to the informing tabular statements with regard to the composition and value of different foods and their arrangement for the various meals. It will be noticed that the article on asthma has been excellently brought up to date, and other sections which have received notable additions are those dealing with venereal and tropical diseases.

In its latest issue the Index of Treatment can be recommended, in accordance with previous notices, as a first-class book of reference.

INTERNATIONAL CLINICS.

A Quarterly of Illustrated Clinical Lectures and Articles. Vol. II. Thirty-fifth series. London: J. B. Lippincott Company. 1925. Pp. 311. Per set of four volumes, 50s.

THIS, the latest issue of a quarterly symposium of lectures and articles on medicine, surgery, and obstetrics contains, like its predecessors, many interesting sections contributed by well-known authorities. Among the contents of this volume which are especially noticeable may be mentioned a dissertation on the present status of affections of the kidney by Dr. I. W. Held of New York; a paper on cystic neoplasms of the ascending mesocolon by Dr. C. G. Cumston of Geneva, in which the symptoms are well set out and the diagnosis discussed; and a suggestive essay by Dr. J. J. Walsh of New York entitled "The Patient or His Disease." Throughout this last paper the valuable advice is insisted on to observe the patient's mental attitude towards his own complaint; it is pleasant to note in this connexion a reference to a paper read before the Charaka Club in New York by Dr. Frederick Peterson, which dealt with the neuroses brought out among those who served in the American Civil War. It is clear from this paper that the experiences of more recent date were not without precedent in America, though the conditions of warfare were so different.

CLINICAL LABORATORY METHODS.

Second edition. By RUSSELL LANDRAM HADEN, M.A., M.D., Professor of Experimental Medicine, School of Medicine, Kansas City. London: Henry Kimpton. Pp. 310. 18s.

THIS book differs from most of the myriad others which have appeared in the last decade under closely similar titles in that theoretical and clinical considerations have been almost entirely eliminated; this has made possible the inclusion of a great deal of purely technical matter which must otherwise have been omitted from a volume of this handy size; and, while reducing its appeal to the student and general practitioner, very considerably enhances its value to the whole-time laboratory worker. The section devoted to biochemical procedures is by far the best; the author has limited himself to describing one technique only for each of the procedures included; his choice has not always fallen upon the particular one most popular in this country; in fact, as was more or less inevitable, it has usually failed to do so. In every case, however, the methods described are sound and well approved, and the descriptions of them are clear and accurate. Very valuable chapters are those on the use of the colorimeter and on the standardisation of quantitative reagents. The bacteriological section is of less value to English readers, and most of the illustrations are familiar.

THE ESSENTIALS OF HEALTHY LIVING.

By WILLIAM S. SADLER, M.D., F.A.C.S., formerly Professor at the Post-Graduate Medical School of Chicago. New York: The Macmillan Company. 1925. Pp. 481. 15s.

THIS appears to be at least the fourteenth book on health matters written by Dr. Sadler for the lay public as his contribution to the educational campaign now proceeding in America and other civilised countries for creating an "urge for health," as it has been called. As Prof. W. A. Evans says in an introduction, "health cannot be greatly improved from above downwards," and he quotes the baffling hopelessness of trying to improve the health of ignorant natives in tropical countries. Dr. Sadler believes that "personal hygiene is the keynote to the health teaching of the coming generation," and this book is a veritable text-book on the art of keeping healthy. It is a long way from the primitive poster with "Kill that fly" written upon it in large capitals to a volume of nearly 500 pages, but if only the intelligent section of the community, or at any rate those that can afford a guide to health at the price of this volume, can be "won for health," the movement will slowly spread downwards. Some of the chapters here strike an original note, particularly that on the history of preventive medicine with which the book opens, and one on "The Mission of Pain" which is full of commonsense teaching. The remainder of the volume deals along the usual lines with the different systemic diseases, diseases of various organs, and matters of general hygienic interest.

SYMPTOMS OF VISCERAL DISEASE.

Third edition. By FRANCIS MARION POTTENGER, A.M., M.D., LL.D., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. London: Henry Kimpton. 1925. Pp. 394. 28*s*.

THIS is the third edition of a book which the author in his preface states to cover a unique field in clinical medicine, the uniqueness, we believe, being to make the patient the chief object of study. We confess that we are still puzzled, as we were in previous readings of this suggestive book, to understand in what this claim to particular singularity consists. In general arrangement the book remains as before—that is, an introduction being followed by three parts entitled (1) Vegetative Nervous System; (2) Relationship between this System and Visceral Systems; and (3) the Innervation of Important Viscera and a Clinical Study of the Germane Reflexes. The reflections are often sound and sometimes obvious, and the work is beautifully illustrated.

A MANUAL OF PHARMACOLOGY.

Sixth edition. By WALTER E. DIXON, M.A., M.D., F.R.S., sometime Professor of Materia Medica and Pharmacology at King's College, London. London: Edward Arnold and Co. 1925. Pp. 478. 18*s*.

WE are glad to receive a new edition of this admirable manual. It has been completely revised in conformity with recent knowledge by Prof. E. Mellanby, Dr. O. Inchley, and Dr. A. J. Copeland, and additions are included covering all accepted knowledge on the subject of pharmacology. The information is imparted in a form useful alike to the student of pharmacy and of medicine.

We have noted before the essentially practical nature of the work, which is at the same time an exposition of the relations between physiology and medicine. Looking back on the way in which pharmacology was taught as recently as 25 years ago, we can see how the large and varied researches in physics and chemistry which have taken place in the interval have enabled teaching to assume the logical character which Prof. Dixon and his collaborators give to it. The reader, for example, of Chapter XVII. in this book, which deals with the drugs acting locally on the alimentary canal, will obtain arguments for therapeutic procedures which he may have to undertake daily in the course of practice. He will know both what to do and why he should do it, and throughout the volume consultation will put him in the same position along other lines. The manual is in the first rank of books available on its subject.

SCIENTIFIC PRESERVATION OF FOOD.

By THOMAS M. RECTOR, Consulting Chemist. London: Chapman and Hall, Ltd. 1925. Pp. 213. 10*s*.

IT is not very evident for whom this book is intended. It gives a clear, but rather gossipy, account, freed from technicalities, of the different methods for the preservation of foods. Indeed, technicalities are so eliminated that the book will make but little appeal to the chemist, bacteriologist, or medical expert interested in the scientific data underlying the problems of food spoilage and their prevention. But to the medical man who wishes to obtain a broad general idea of the methods employed in food preservation, this book may make appeal, and it will be found of considerable interest to laymen. It is, however, a serious defect in a book issued in 1925 that the important subject of vitamins and the extent to which they are destroyed or damaged by food preservation methods is entirely ignored. Vitamins, indeed, are only incidentally mentioned. In other directions words with a technical meaning are used without adequate explanation, a defect if the work is intended for the uninitiated.

In scope the work is comprehensive and includes short accounts of the nature of the main types of manufactured and preserved foods. The causes of food spoilage are discussed, including those from insects and larger animals, micro-organisms, enzyme action, and physical and chemical conditions. The food preservation methods include simple storage, application of cold, dehydration, chemical preservation, preservation by fermentation, hermetically sealing, heat sterilisation, and pasteurisation. In the description of these processes the author follows customary lines, but here and there unusual pieces of information are quoted. For instance, it is mentioned that the United States Bureau of Fisheries during the war recommended the canning of dog-fish and other members of the shark family under the name of "grey-fish." When acted upon by many canners it was discovered that the flesh of sharks contained urea which decomposed in time to ammonia, spoiling the flavour of the product and swelling the container. This caused great loss to canners and illustrates well the importance of scientific knowledge in relation to food preservation.

New Inventions.

A NEW GASTRECTOMY CLAMP.

SURGEONS who have had practical experience of the modification of the Billroth I. gastrectomy operation introduced by Schoemaker of The Hague[1] will have found considerable difficulty in applying Schoemaker's crushing clamp to the stomach in certain cases. That instrument has to be passed across the stomach from the greater curvature, and where the ulcer is high on the lesser curvature, or the stomach not very mobile, it is sometimes impossible to apply the clamp sufficiently above the lesion. The clamp here illustrated is designed to extend the range of this

ingenious and physiologically admirable operation. It is applied from the upper border or lesser curvature of the stomach, with the inner and outer halves clamped together by the central milled screw and by an interlocking device at the tip of the blades. The two upper blades are set on a rocking joint so as to secure even crushing of the stomach, and the upper and lower blades are so ground as to fit into each other without risk of side-slipping or shearing the stomach wall. The crushing is effected by tightening the wing nuts on the ends of the handles. When the distal portion of the stomach has been cut away, exactly as in the Schoemaker operation, the outer blade is removed by simply releasing its wing nut and the central milled screw. I have found that this instrument simplifies the Schoemaker operation considerably.

I am indebted to Dr. K. B. Pinson, anæsthetist to the Manchester Royal Infirmary, for designing it, and it has been made for me by the General Radiological and Surgical Apparatus Co., Ltd., 204–6, Great Portland-street, London, W. 1.

JOHN MORLEY, Ch.M. Manch., F.R.C.S. Eng.

[1] Surgery, Gynecology, and Obstetrics, December, 1921, pp. 591–596.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 12, 1925.

THE TREATMENT OF FRACTURES.

THE important series of lectures by Sir WILLIAM DE COURCY WHEELER which has been appearing in our recent issues and terminates to-day, and the discussion on the subject at the meeting of the British Medical Association at Bath, have combined to awaken a widespread interest in the treatment of fractures, and especially in that treatment as carried out in our great hospitals and as taught to our students. That this treatment might be greatly improved no surgeon will deny, but as to how it should be improved opinions differ, and, broadly speaking, there are three schools of thought. First, there are those who would retain the present system of treatment in general wards by general surgeons; secondly, those who would treat these cases in a special department under general surgeons; and thirdly, those who advocate a department controlled by specialists. The first school claims that specialisation has already gone too far; that it is to the great general surgeons of the past that we owe most of our knowledge of fractures; and that, from the point of view of the student, the removal of these cases to a separate department would withdraw them entirely from his range of educational subjects—for no one would be found to suggest that intensive attention to fractures should form another special subject in the ordinary curriculum. The second school would seem to find a happy mean and to be in a very strong position, were it not that the third maintains that the general surgeons would never go near the fracture department, and that in any case the average general surgeon, despite his position on the hospital staff, often knows little specially about fractures or their treatment. And there is occasionally just enough truth in this final argument to give very serious point to their contention.

The matter might be left to academic discussion, when we can see directions in which entertaining debates would ensue, were it not that it is in reality one of the most serious problems of practical surgery at the present day. With the increase of machinery and of mechanical transport and the general speeding up of life the number of fractures has enormously increased. Their occurrence forms a serious item in the industrial problems of to-day, and, quite apart from individual considerations, their mismanagement may be a source of serious loss to the community. The vast majority of these cases will of necessity come to be treated neither by fracture specialists nor by general surgeons at hospitals, but by general practitioners who have so wide a range of professional and scientific duties that they can only pursue routine of the proper standard. The careful segregation of a few of these cases of fracture into special departments at the great teaching hospitals would certainly raise in a proportional number of centres the level of routine, but such sporadic instruction would be a mere drop in the ocean of real need—namely, that our students in the mass should receive better instruction in the treatment of fractures. It is undeniably the case that the student cannot be well taught on cases which are badly treated, while at the present time the treatment of fractures in general surgical wards is often left entirely to the house surgeon, who cannot possibly have the knowledge required to do the best for the case, and whose unfailing enthusiasm will not supply the experience wanted. The present system, indeed, when closely examined, has practically nothing to commend it, for it is often unfair alike to the patient and to the student, whilst it is not unusual for a hospital surgeon, whose interest is attracted to other branches of surgery, to regard the fractures in his beds as mere encumbrances of the ground at his therapeutic disposal. A far better arrangement, and one likely to meet the reasonable requirements of all concerned, would be the setting aside of special wards for the treatment of fractures, to which the patients would be admitted under the charge of the various surgeons on the staff, but ensuring that these wards should be under the charge of a senior medical officer of the standing of a registrar, with an aptitude for the special work. The house surgeons of the different members of the staffs would look after the cases of their respective chiefs as they do at present, but their work would be carried on under the eye of this senior medical officer, to whose advice they would be expected to defer. The members of the staff really interested in the treatment of fractures would have the inestimable advantage of the assistance of an expert, whilst the student would be presented with an object-lesson in systematic treatment which he would be scarcely likely to forget. All the experience of the war in the treatment of fractures went to show how much better this was carried out when the cases were grouped together in one ward and under one control, and far from nursing being more difficult under these conditions, it became easier from the systematic arrangements which could be made for its requirements.

We think that these are the sound lines on which to employ and develop specialism in any important or more or less general branch of medicine, especially in those hospitals which are responsible for the training of our medical students. At the present time the student may be too much at the mercy of men of high scientific attainment, each of them convinced that his own is the only subject that matters. They may load him up with knowledge which would be worth its weight in gold if he could use it, but to him it is heavier than lead and just about as useful; and thus his frail barque, blown from one department to another, is finally wrecked by a brutal examiner who asks him practical questions. The fact that so many of our students succeed in arriving at port, and later in becoming really useful and practical men, says more for their power of endurance than for the wisdom of their educational training in many schools, though there are teachers in those schools whose devotion minimises the difficulties. It is undoubtedly to the specialist, willing to devote his energies to a limited field, that surgery owes some of its greatest advances, but it is from the teaching of the general clinician, the man who speaks from a wide experience spread over many branches of his art, that the student will learn the principles upon which he will ultimately rely. It is, we think, a matter for real regret that many surgeons have

become specially engrossed in other branches so as to lose sight of the importance of fractures, leaving their treatment to be carried out along unprogressive and uninspiring lines. Why this should be we cannot guess, for not only are the highest skill and ingenuity called for in the modern and special methods of this branch of surgery, but the cases requiring aid are increasing, and the general practitioner will need more assistance than he now gets from his training. Some such plan as we have suggested might help the student towards practical skill in a vital subject, and might bring back to the hospital surgeon a true sense of proportion and an appreciation of the exquisite art of which British surgeons were once justly proud.

FOOT-AND-MOUTH DISEASE.

AFTER the two abortive attempts which have been made to elucidate the mysteries of foot-and-mouth disease by appointing committees to make investigations, it is most encouraging to find that the third council, constituted as recently as March, 1924, under the presidency of Sir CHARLES SHERRINGTON, and later Sir WILLIAM LEISHMAN, is already in a position to issue a report [1] which sets out solid and substantial progress. The work has been done partly at the laboratories of the Ministry of Agriculture at Weybridge under the supervision of Sir STEWART STOCKMAN, and partly at the Lister Institute under Dr. J. A. ARKWRIGHT, who had experience of the disease in the ill-conceived attempt to work at it on a hulk in the Thames estuary. So far their observations have been confined to small laboratory animals, but by the adaptation of the Ministry's cattle testing station at Pirbright an admirable establishment has been secured where good facilities for exact work can be combined with a reasonable degree of isolation and experiments on pigs and cattle can be begun. This postponement of the direct attack on the disease in farm animals has not been without its advantages, since it has enabled attention to be concentrated on the means available for the identification of the virus and on its nature and properties, necessary preliminaries to the investigation of the main problems which are the mode of spread and the possibilities of protective inoculation.

It is curious that LÖFFLER and FROSCH, who found as long ago as 1897 that the vesicular fluid remained infective after it had been passed through a Berkefeld filter, failed to reproduce the disease in the small laboratory animals, for recent workers have all agreed that the guinea-pig may be infected with a regularity and certainty and with resultant lesions so characteristic that it is of the greatest value as a test animal. Almost any sort of inoculation gives positive results, but infection is best achieved by intracutaneous injection into the skin of the pad of the hind foot. After an incubation period of one to four days, redness and swelling appear at the site followed quickly by vesiculation. One or two days later symptoms of generalised infection appear; the animal is obviously ill, loses weight, there is often diarrhœa, and blisters appear in and about the mouth and on the fore-feet; appropriate experiments show that the virus is present throughout the body, mainly in the blood. As in cattle the mortality is low —about 5 per cent.—and the recovered animals are highly resistant to a second inoculation. This guinea-pig reaction is the only practicable means at present available for identifying the virus. A rather limited series of experiments on other animals indicates that a proportion of white and wild brown rats can be infected with some difficulty and the long-tailed field mouse seems to be quite susceptible; with house mice, white mice, and fowls the results were negative. Attempts to transmit the disease by bugs failed, and epidemiologically it is very remarkable that infection is never transmitted from diseased to healthy guinea-pigs living together.

Using the guinea-pig reaction, most interesting observations have been made on the nature of the virus. It is present in abundance in the fluid of the vesicles, about 0·05 c.cm. of a 1 in 1,000,000 dilution being regularly infective. It dies in a day or two at 37° C., in the cold it survives for months, and if diluted vesicle fluid is rapidly dried over sulphuric acid it may remain potent for at least six weeks; infected tissues can be conveniently preserved in 50 per cent. glycerine, especially in the cold. As is well established, the virus readily passes through porcelain filters, and it is so small (or of such an abnormal gravity) that it cannot be concentrated by centrifugalisation; when in blood serum it is not entangled in the precipitates formed by precipitins or in the general coagulation of the proteids brought about by 60 per cent. alcohol. Nor are its dimensions or its substance of the nature which leads to its absorption onto the surface of particles such as red blood corpuscles, dead bacteria, or kaolin. Its resistance to ordinary killing agents is equally remarkable. In 60 per cent. alcohol it survives for 18 hours at room temperature, whereas *B. coli* and staphylococci are killed in a minute; in 0·5 per cent. phenol it lives for 21 days, and for two days in a saturated solution of chloroform in water; ether vapour does not kill in 36 hours, though 1 per cent. antiformin destroys it in an hour. Attempts to repeat the cultivation on artificial media reported by FROSCH and DAHMEN last year have failed even after a personal visit to Berlin, where Dr. ARKWRIGHT and Dr. S. P. BEDSON were freely shown the methods used by those workers. Such seems a common fate of much-advertised discoveries. The progressive transmission of the disease through guinea-pigs without loss of virulence seems then to be the only evidence that the virus is alive. Its other properties do not correspond with any recognised conception of living matter, nor is there at present any proof that it is particulate. It may, indeed, be a real *contagium fluidum* at last, and these researches are at least as important from this point of view as they may be as a beginning of gaining control over a disease which has been an intense agricultural nuisance for long enough.

[1] First Progress Report of the Foot-and-Mouth Disease Research Committee. Ministry of Agriculture and Fisheries. Stationery Office. 1925. 1s. 3d.

THE PUBLIC HEALTH ACT, 1925.

THE Minister of Health has published a summary of the new Public Health Act which came into force on Sept. 8th.[1] The Act covers a wide range and much enlarges the powers of local authorities, though many of its provisions require adoption by the local councils before they come into force. They deal with many matters of housing, drainage, recreation grounds, and street planning, as well as with more strictly medical matters. The section on verminous premises, &c., enables the local authority, on a certificate of the medical officer of health or sanitary inspector, to cause verminous articles in any premises used for human habitation to be cleansed

[1] H.M. Stationery Office, Adastral House, Kingsway, London, W.C. 2. 6d.

or destroyed at the public expense. The owner or occupier of verminous premises may be required to remove the wallpaper or take any other steps necessary for clearing the vermin. Any person notified as being in a verminous condition may be removed by his own consent to a cleansing station, or if he does not consent a petty sessional court may order his removal for cleansing. Women are to be treated only by a medical practitioner or a woman authorised by the M.O.H. The section dealing with infectious diseases provides a penalty not exceeding £5 for any person in whose dwelling a patient has died of such a disease if the owner of the dwelling fails to take reasonable steps to prevent persons coming into contact with the body. It enables a justice to grant the M.O.H. a warrant to enter a common lodging-house and examine its inmates if the existence of such disease is suspected; or the lodging-house may be closed by the petty sessions. The diseases included in the term "dangerous infectious disease" are those listed in the Notification Act of 1889. The list, therefore, does not include plague, cerebro-spinal fever, or dysentery, but it may be added to by the Minister at need. County councils and urban authorities are enabled by this Act to apply to a court of summary jurisdiction for an order for the removal to hospital of any person suffering from an infectious pulmonary tuberculosis and for his detention up to three months, even contrary to his wish. To safeguard the patient in such a case it is enacted that this power shall only apply where the accommodation prevents the adoption of adequate measures against the spread of infection and where it can be shown that there is serious risk to others. The period of detention may be extended a further three months if the circumstances are unaltered. Section 67 provides that any local authority may arrange for the publication of information on health questions and for lectures and display of pictures. Section 72 forbids the sale, preparation, or storage of foodstuffs in any room where a w.c. or sleeping place communicates directly or where there is inlet or opening from any drain. Dealers in rags and bones are not to be allowed to sell food or toys of any sort. The Act does not apply to London except in its ninth section, dealing with baths and washhouses. This part removes the statutory prohibition on mixed bathing. The amendments thus effected in the law are a preliminary step towards the much-needed consolidation of the Public Health Acts into a reasonable code.

TUBERCULOUS MILK: NEW REGULATIONS TO PREVENT HUMAN INFECTION.—The Minister of Health has introduced new regulations (H.M. Stationery Office. 1925. 1*d.*) investing local authorities with specific powers for the purpose of preventing the spread of infection by tuberculous persons handling milk. The enforcement of the regulations will be a matter for the local sanitary authorities; they forbid any person suffering from tuberculosis of the respiratory tract to enter on any employment or occupation which would involve the milking of cows, handling of vessels used for milk or the treatment of milk. Any such person can be required to discontinue his employment at a week's notice, with right of appeal to the courts. The new regulations to some extent remove the restrictions imposed on local authorities in cases of notified tuberculosis. Authorities are urged, however, to make every effort to preserve the confidential character of notifications as far as is consistent with the due exercise of the new regulations. The medical officer of health is required to take all reasonable steps, including expert clinical and bacteriological examination, to be sure that the suspected person is really suffering from tuberculosis.

Annotations.

"Ne quid nimis."

VOCATIONAL TESTS.

THE familiar question "What shall we make of the boy?" has usually been settled in the past by family conclave, modified by financial considerations, the desire of the father either for a successor in his business or to see his son succeed in some line of life where he himself has failed and, to an increasing extent in recent times, by the expressed wish of the child himself. In the near future it is not so certain that any of these factors will have a place in the selection of a career. The psychological expert will be called in to settle the matter by the standardised tests that are already being used extensively in America and on the continent. In Germany, for instance, such firms as Osram, A.E.G., Siemens, Krupps, and the Post Office and State railways have established psychological laboratories in which their new employees are tested before being allocated to the various branches of the firm's activities. Several large firms in this country also have sought the aid of the National Institute of Industrial Psychology in instituting definite psychological tests. A committee of the British Association under the chairmanship of Dr. C. S. Myers drew up a report for presentation to the Psychological Section at Southampton. The report reviews the present position of vocational testing and asks for a grant towards the expenses of a systematised research into the subject. The committee say that:—

"In order to define the position of psychological tests in schemes of vocational guidance and selection it is important to realise that the school records give only one side of a child's mental or physical activities. The records are obtained under conditions very different from those obtaining in the outside world, and their value must be estimated accordingly. In the same way a teacher's estimate of a child's ability is only valid within his sphere of observation; similarly with the estimates of parents and guardians. The medical examination can give help mainly in determining for what occupations a child is not fitted. In this sphere there is an enormous ground to be covered before valid positive information can be obtained. Psychology can help in forming a truer estimate of the value of the children's own wishes and inclinations in determining a choice of occupations, and it can survey more completely and exactly than any other method the child's mental and physical activities. Psychological tests can be applied which will ascertain, for instance, his level of intelligence, measure his manual dexterity, and to a certain extent estimate his temperamental qualities. This information is, however, of little use unless the extent to which these qualities are required in everyday occupations has also been determined, and this implies a careful analysis of the requirements of the occupations and a classification of those requiring allied ability. When such information is available reliable advice can be given.

"With the rapid development in this work that has taken place during the last few years, there has arisen a demand for persons who have received training in the methods of devising, applying, and evaluating suitable tests, and a number of bureaus have organised training courses for those who wish to take up this work. In nearly every country of the world the work of developing vocational tests is proceeding rapidly, and it is felt that in order that workers in this country may keep abreast of the developments here and abroad, full information should be available concerning: (1) vocational tests that have proved of value in practical use; (2) research work that has a direct bearing on the development of vocational tests. In order to do this satisfactorily it will be necessary to get in direct touch with all organisations carrying out this work and to obtain, wherever possible, copies of the tests, accurate descriptions, drawings, and illustrations of apparatus used, &c."

There can be no doubt of the value of such research. Those who believe that the true vocation of the best type of worker is indeed "a call," strong enough to drive the individual to his destiny over all obstacles, must nevertheless admit that to many men such an experience comes late if at all, and any laboratory process that can reduce the number of square pegs fitting clumsily into round holes is bound to increase the well-being of the community as well as the sum total of individual content.

THE NEW CENTRAL PHARMACOLOGICAL LABORATORIES.

THE plan to establish new pharmacological laboratories at the headquarters of the Pharmaceutical Society [1] has reached the stage at which a director is being sought, and in all probability the laboratories will be fully equipped and staffed before the Therapeutic Substances Act comes into operation. The detailed arrangements and the lines on which the scheme will develop will not be determined until the director has been appointed, but we understand that it is the intention of the Pharmaceutical Society that commercial testing as well as research work in pharmacology shall be commenced at the earliest convenient time. The director will be given a free hand in the choice of equipment and in the selection of his staff, and while the whole of the work of the laboratories will be under the supervision of the director the routine commercial testing will be left as far as possible in the hands of competent assistants, freeing the director to carry out researches. We have inspected the four laboratories that will be placed at the disposal of the director, and this accommodation would appear to be sufficient for some time to come, but if the work develops to the extent that is hoped it may be necessary, in due course, to provide further premises. It is probable that in the earlier period the work will be confined to the physiological standardisation of drugs such as digitalis, strophanthus, and ergot, these being typical examples of drugs which cannot be standardised by chemical means, and that the standardisation of vaccines and sera and similar substances will be deferred until a later period in the development of the scheme. This, however, is a matter for future decision. Commercial testing for firms which are not in a position to undertake the testing of the products which the Therapeutic Substances Act will require to be standardised is not likely to cover the cost of the laboratories, and indeed it is not intended that the laboratories should be self-supporting. The advisory committee, which includes Sir Nestor Tirard, Dr. H. H. Dale, and Sir Humphry Rolleston, will assist the Council of the Pharmaceutical Society in selecting the director.

THE DENTAL SERVICE IN THE U.S. NAVY.

THAT the care of the teeth of the men of the U.S. Navy obtains, and rightly, grave consideration from the officers of the Medical Corps, is evidenced by the issue of a "Dental Number" of the *U.S. Naval Medical Bulletin* (for April). The Surgeon-General, in his recent annual report, observed that there is now in actual service one dental officer to every thousand men, but that the establishment, if attained, would provide one officer to 615 men, although, in his opinion, there should be one for each five hundred. The actual work of officers of the Dental Corps is much lightened by the help given by the naval dental assistants or dental technicians (selected from the sickberth staff and trained specially for 16 weeks), who act as "oral hygienists"; they clean mouths, do scaling, and give patients individual teaching besides assisting the dental officer in the management of apparatus, the sterilising of instruments, and so forth. The importance of the work done at naval training stations, where recruits are received, is shown by the experiences reported from one of them, where, of 4337 recruits examined and charted in six months, 3016 were found to require treatment; 1246 teeth were extracted, 6314 cavities found, and 1040 fillings done, while 5274 fillings were left over to be carried out in rotation on board ship. A dental ward of 12 beds has been opened in the naval hospital at Norfolk, Virginia, with complete annexes for dental work. It is there recognised that the dental officer's first duty is that of "prophylactodontist," especially before operations requiring general anæsthesia, and in syphilis. His next care is the elimination of dental focal infections, which may lead to systemic sequelæ, such as rheumatism, gastro-intestinal disorders, diseases of eye, ear, nose, antrum, and skin. Lieut.-Commander J. R. Barber, Dental Corps, U.S.N., has devised a scheme of routine for the dental examination and treatment of the men of small craft arriving at the New York Navy Yard for refit; this has worked well and is mentioned with approval. The men are all examined on arrival, those requiring treatment are listed, and the list is sent to the captain, who daily releases for treatment as many men as he can spare from duty. A new list is sent next day, and so on, till all are put right.

[1] THE LANCET, June 6th, p. 1192.

A STANDARD FOR MATERNAL MORBIDITY.

LITTLE progress can be hoped for in dealing with what is still commonly called puerperal fever unless the condition is accurately defined. In 1905 the British Medical Association laid down a definition of puerperal morbidity and recommended that it should be adopted as a standard by the medical profession. Although this standard has been largely accepted its general adoption has not been universal. This lack of uniformity is well brought out in comparing the clinical reports of various maternity hospitals and charities. There is the more stringent Queen Charlotte Hospital standard which in some quarters is preferred to that advocated by the Association. Several hospitals have invented entirely new definitions of their own, whilst others have failed to interpret the B.M.A. prototype correctly. We have before us the medical report for 1924 of the British Hospital for Mothers and Babies at Woolwich, the authors of which show two sets of figures "in the absence of any generally accepted standard of morbidity-rate." These are based on the number of deaths which have shown a temperature of (1) over 100·4° F. for 24 hours or more, and (2) over 100° for less than 24 hours. It is a matter of serious concern when an institution as admirable and reliable as the British Hospital at Woolwich denies the existence of a standard of puerperal morbidity; it means that it is impossible to compile any statistics on the subject whatever. Obviously, if we are to avoid absolute chaos, the B.M.A. enactment should be adopted in toto or a new formula should be drawn up more in accordance with the views of obstetrical authorities both in this country and abroad. If the latter course were adopted the various international statistical returns on morbidity could be compared and some idea obtained of the incidence of puerperal infection and the relative value of the many forms of treatment carried out. Could not the medical statisticians associated with the League of Nations draw up a memorandum on the subject and arrange a standard in conformity with the opinion of the leading obstetricians of their respective countries?

THE ANÆSTHETIC PROPERTIES OF PROPYLENE AND ACETYLENE.

SINCE Luckhardt and Carter published in 1923 their discovery of the value of ethylene as an anæsthetic, several experimenters have investigated its homologues. The physical properties of propylene suggested that it would prove a more powerful and safer drug than ethylene. Brown, Meyer and Hopff, and Riggs have experimented with it, and we published recently the report of Dr. F. E. Shipway[1] on this and other new gaseous anæsthetics. The August number of *Anæsthesia and Analgesia*, the publication of the International Anæsthesia Research Society, contains the record of experiments by Prof. J. T. Halsey, Mr. C. Reynolds, and Mr. W. A. Prout at New Orleans. They have found an initial difficulty in obtaining pure propylene, but when this has been overcome rapid and comfortable narcosis can be produced in animals and man by a concentration less than one-half of that required with ethylene.

[1] THE LANCET, 1925, i., 1126.

Death does not result till a concentration 150–160 per cent. of the anæsthetic dose is reached and is usually due to simultaneous failure of the heart and respiration. In animals it was not possible to obtain complete muscular relaxation, but an analgesia sufficient for clinical purposes resulted from concentrations of 40 to 50 per cent.; at which strength there seemed to be no harmful effects and no toxic sequelæ. The authors conclude that propylene may prove of value in anæsthesia, but this can only be determined by cautious clinical trials made by experienced and competent anæsthetists with careful attention to exactness in dosage. The same publication contains a note by Mr. A. Goldman, D.D.S., and Mr. J. D. Goldman, D.D.S., of New York, on acetylene-oxygen anæsthesia. This combination has been extensively tried in Germany. The American investigators have experimented with white mice and conclude that anæsthesia can be maintained with percentages of oxygen much higher than that in air and that the symptoms of danger (gasping) are readily recognisable and appear early enough before respiration ceases for the animal to be easily brought back into safety. The safety margin is much more favourable with commercial acetylene and oxygen than with either ethylene and oxygen or nitrous oxide and oxygen. Dental operations conducted under this anæsthesia were very successful, the subject retaining good colour and returning to consciousness with a hearty appetite ten seconds after the apparatus was removed. It is important to get the acetylene pure; German investigators claim to have freed it from all trace of phosphine and sulphur, but the American workers did not succeed in getting less than 0·0003 per cent. of phosphine and 0·002 of sulphur.

INTESTINAL NEURO-DYSPEPSIA.

UNDER this title Prof. Arturo Campani, of the University of Modena, publishes a description [1] of a syndrome which, though clearly defined, is slight in its effects on the bodily organism, and perhaps on this account liable to be confused with myelasthenia, disturbances of metabolism, or chronic enterocolitis. According to Prof. Campani the malady consists of a stable and characteristic group of fundamental symptoms which are deserving of special study and nomenclature. These manifestations are: (1) Insomnia of a peculiar kind, the patient sleeping soundly till 2 or 3 A.M., then waking with a sense of heat, sweating, and borborygmus. Sleep is resumed with difficulty. (2) Disturbance of intestinal digestion characterised by changes in the rhythm of defæcation, sometimes spasmodic constipation, but more often slight tendency to diarrhœa or to repeated and copious evacuations. (3) Retardation of morning digestion, the patient having no inclination for food after the mid-day meal. (4) An eruption on the dorsal surface of the fingers sometimes so slight as to escape notice unless carefully looked for, characterised by guttate desquamation of the epidermis over the second and third phalanges, with irritable redness of the underlying dermis, more or less evident erythema, never severe, dry, with slight tendency to fissures. Not infrequently the skin of the phalanges is less pigmented and becomes smoother than the rest of the hand. (5) Tingling on the arms and head, retinal hypersensitiveness, muscæ volitantes. (6) Increased plantar and skin reflexes. (7) Tolerance towards adrenalin, intolerance towards belladonna even in small doses. This group of symptoms which form the syndrome is often accompanied by accessory manifestations such as polyuria, hand tremors, and irritability of temper; true psychasthenia, however, is never found. The general health suffers but little; there is not rarely a history of phosphaturia in youth which disappears with the progress of years and develops into a tendency to urinary hyperacidity and calciuria. This syndrome rarely makes its appearance before the age of 40 and is almost confined to the male sex. Its cause may lie in some functional disequilibrium of the endocrine glands causing sympathetic and vagal hypotonus; it usually ceases when true old age is reached. Further elucidation is required to settle what glands or group of glands are most implicated; the disturbances of calcium metabolism and the cutaneous pigmentation seem to suggest a slight suprarenal insufficiency, and Prof. Campani thinks that the cutaneous nervous and intestinal signs have some remote resemblance to pellagrous conditions. Treatment is best directed to elimination from the diet of sugar, cream, chocolate, and sweet farinaceous foods, and to reduce the evening meal to a minimum. Bromide of sodium may be given as an intestinal antispasmodic, and some good effects have resulted from the administration of preparations of lime together with adrenalin.

[1] La Riforma Medica, April 27th, 1925.

THE ICONOGRAPHY OF VESALIUS.[1]

IN 1912 Prof. Dr. Paul Heger, now president of the University of Brussels, originated a scheme to produce a Liber Memorialis in honour of Andreas Vesalius, to commemorate the fourth centenary in 1914 of the birth of the father of modern anatomy. A subsidy was promised by the Belgian Government and a select band of scholars was chosen to collaborate. Of this project, including biographical, historical, and scientific and iconographic sections, only the last section, which was placed in the competent hands of Mr. M. H. Spielmann, F.S.A., has come to fruition. With the active assistance of Prof. Heger, Mr. Spielmann was able to complete his section, which was set up in type before the other essays were completed. Then came the war, and the whole matter was suspended. After the war it was found impossible to proceed with the scheme, for everyone was more occupied with the future than with the past, and of the band of scholars who had been entrusted with the other sections not less than four had fallen victims to the war, either directly or indirectly. But it was decided to publish the iconography, which was first written in French, the English version being published under the auspices of the Wellcome Historical Medical Museum, forming No. 3 of the series of Research Studies in Medical History. The work is in every way worthy of the distinguished anatomist; we doubt whether so complete an iconography of any one individual has ever before been compiled. Mr. Spielmann has omitted nothing which can throw light on his subject. He deals with portraits in oils, pictures, engravings, illustrations, sculpture, and medals; there are numberless illustrations most admirably reproduced and an iconographic bibliography which is a model of what such things should be, while Mr. Spielmann's critical and literary notes are of extreme interest. The portrait of Vesalius which is the source and ground of all others of him, either directly or indirectly, is the well-known woodcut, dated 1542, which appears in the first edition of Vesalius's great work, De Humani Corporis Fabrica Libri Septem, published at Bâle in June, 1543. The drawing was done by Calcar, but the name of the wood-cutter to whom he entrusted the drawing is unknown, although he was evidently a master of his craft. There are 29 known portraits in oils of Vesalius, or at least claiming to represent him, but of these Mr. Spielmann considers that only nine can be reasonably regarded as true representations. One of them is no longer in existence, although it was so when Mr. Spielmann wrote of it, the famous picture which used to be in the University of Louvain. Besides these oil paintings there exist numerous engravings both of Vesalius alone and showing him demonstrating before an audience, the chief of these latter being the title-page of the Fabrica of 1543. Sculptures and medals are dealt with in the latter portion of the iconography. Of no man of science, we may say, are there so many graphic illustrations as of Vesalius, and when we consider that among the artists are such men as

[1] The Iconography of Andreas Vesalius, 1514–1564; with Notes, Critical, Literary, and Bibliographical. By M. H. Spielmann, F.S.A. London: John Bale, Sons, and Danielsson, Ltd. 1925. Pp. 243. 30s.

Titian, Tintoretto, and Moroni, it is evident that his fame is not posthumous alone. Artists and medical men, together with historians, owe a debt of gratitude to all the begetters of this book.

PATHOLOGICAL INVESTIGATION IN SCOTTISH MENTAL HOSPITALS.

IN Scotland the effort to centralise and develop the study of mental pathology is continuing. The Board of the Scottish Asylums Pathological Scheme report that Dr. F. E. Reynolds has been appointed superintendent of the laboratory with recognition as lecturer in neuropathology to Edinburgh University—a most valuable combination of posts. Dr. Reynolds visits the contributing asylums periodically to advise and encourage the work carried on by individual medical officers, and is himself conducting researches into the paths of infection of the leptomeninges. The laboratory undertakes such routine work as may be desired by the 21 hospitals supporting the scheme, and supplies them with printed forms for description of specimens and circulars explaining the best methods of taking, despatching, and preserving material. A similar scheme is in force in the West of Scotland. It is reckoned that a contribution at the rate of six-tenths of a penny per patient from each of the seven bodies concerned in the scheme would make the financial basis sound. Dr. W. Whitelaw, director of the research institute in Glasgow, reports a steady increase in the routine work done, from 450 specimens in 1921 to 2006 in 1924. Owing to epidemics of typhoid fever at Hawkhead and Greenock Asylums, a large proportion of these specimens were examination of excreta for *B. typhosus* or of blood for Widal reaction. The epidemic at Hawkhead seems to have been present since 1916, but has undergone exacerbation since 1921. Twelve carriers in all have been isolated, and Dr. Whitelaw is of opinion that typhoid will come to occupy the position that dysentery once held if drastic steps are not taken to deal with it. He urges the importance of early recognition and early isolation. Research has been undertaken on blood-sugar in anxiety states, on the calcium content of the blood in epilepsy, and on the cerebro-spinal fluid in general paralysis which is being treated by protein shock; but it is too early yet to formulate conclusions. A number of medical officers have been examining the relation of chronic infection, especially intestinal toxæmia, to certain mental disorders. Treatment by intestinal disinfectants has not yielded any useful results. Dr. J. Neilson, a M'Cunn scholar, is working on the histology of encephalitis lethargica. Certain post-mortem material is being investigated with special regard to the associative mechanism, and Dr. Whitelaw appeals for material from dementia præcox cases. It is clear that while valuable work is being done by these two Scottish schemes, there is still ample scope for extension and improvement.

THE LATE DR. J. DE ZOUCHE MARSHALL.—John James de Zouche Marshall, L.R.C.S. Irel., Lieut.-Colonel, R.A.M.C. (T.), died at his residence in Hove on August 24th at the age of 78. Born in Limerick, he was educated in Dublin, studying medicine at the Royal College of Surgeons in Ireland, where he qualified L.R.C.S. Irel. in 1869, L.A.H. in 1870, and L.M. (Coombe Lying-in Hospital) in 1871. His professional life was spent in England, at Surbiton, Esher, and Hastings, until his retirement some eight years ago, when he took up residence at Hove. While in practice he actively identified himself with the Volunteers, and then with the Territorials in the Royal Army Medical Corps, to which he devoted much of his time and energy. He rose to the rank of Lieut.-Colonel and received the Volunteer Decoration. He commanded the 3rd Home Counties Field Ambulance, was lecturer and examiner to the St. John Ambulance Association, and at one time served in that capacity to the Metropolitan Police. He contributed a number of articles on ambulance work and allied subjects to medical literature. Although in later years declining health prevented him from taking an active part in the affairs of the St. John Ambulance Association, he followed the work of the movement with a never-failing interest.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CXXXVIII.—THE TREATMENT OF PAPILLOMA OF THE BLADDER.

OF the various methods of treatment of papillomata of the bladder, only two will be considered here; in one, the tumour is burnt or coagulated by the passage of an electric current at high voltage, contact being effected by an electrode introduced through a catheterising cystoscope, the method being known as fulguration; in the other, the tumour is removed by operation through a suprapubic incision. The old treatment of washing out the bladder with solutions of various drugs is not curative, and the removal of growths with the operating cystoscope is not advised for reasons which will be clear later.

Two Lines of Treatment.

Each form of treatment has its advantages and disadvantages, and what is suitable for one tumour may be unsuitable for another. Each case must be judged on its merits, and, while no hard and fast line can be drawn, the following points should be taken into consideration when deciding which is the better method for any given patient.

Fulguration possesses these advantages. It can be done without a general anæsthetic, and the patient need only be confined to bed for a day or so, and in many cases not at all; it is therefore valuable for patients for whom a general anæsthetic is contra-indicated or who prefer a cure without a "cutting" operation. It is suitable only for growths which are undoubtedly simple, relatively small, and not numerous; mere multiplicity, however, is no contra-indication, provided the total bulk of the tumours is not too large. It is of the greatest value in dealing with the small recurrences or implants which so frequently occur after the cure of an original papilloma. Experience has shown that there is a somewhat less risk of the occurrence of secondary seedlets on the vesical wall after fulguration than after suprapubic removal.

The disadvantages of fulguration are as follows. As the process of coagulation is slow, the procedure required for the complete destruction of a tumour, unless of small size, is often a lengthy one, frequently several sittings being required, especially when no general anæsthetic is employed. Fulguration is unsuitable for tumours that are sessile, as it is difficult to be sure of their non-malignancy, owing to the impossibility of determining for certain with the cystoscope the absence of infiltration of the vesical wall. It is unsuitable for tumours that are large or very numerous, owing to the number of sittings required and sometimes to the field of operation being obscured by the imbedding of the end of the cystoscope in portions of the growth. Lastly, it is unsuitable for cases in which hæmorrhage occurs on the least provocation and cannot be controlled; hæmorrhage of this type is most likely to take place when the end of the cystoscope butts into and traumatises the growth, which is often near the internal meatus or of large size. Fulguration is difficult to employ when tumours are situated in certain inaccessible positions, such as close to the internal meatus, on the antero-superior surface, and at the back of the retroprostatic pouch.

Removal by suprapubic cystotomy has the advantage of enabling the tumour or tumours to be eradicated at one sitting, and is indicated when the question of non-malignancy is in doubt, or when the tumour is sessile or of large size. It is the only form of treatment for the radical cure of definitely malignant growths, as by its means those tissues which are infiltrated, including portions of the vesical wall

of varying extent, can be removed with the tumour. Furthermore, the suprapubic exploration of the bladder affords the only means of determining accurately the presence of infiltration in the earlier stages and the extent of it in the later.

Removal by suprapubic cystotomy has the disadvantage of subjecting the patient to a major operation with its attendant risks and complications and to a period of post-operative convalescence. Generally it is possible to suture the suprapubic vesical wound completely and, in the majority of cases, to obtain primary union without a urinary fistula; in favourable cases, therefore, the patient is confined to bed for a fortnight, while in those in which a fistula occurs, the wound will take from three to six weeks to heal. The occurrence of secondary seedlets is more common after this method of treatment than after fulguration, but is in part probably due to the more serious tumours being dealt with by this method. Recurrences, however, do take place not uncommonly in the suprapubic vesical scar and rarely in the scar of the abdominal wall.

In deciding which is the method of choice in a given case, in addition to the above considerations, due regard must be given to the temperament of the patient, his ability to attend for treatment, and his own views on the matter. Some surgeons are more strongly in favour of fulguration and others of removal by suprapubic cystotomy.

Of all the points to be taken into consideration, the determination of the innocence or malignancy of the tumour is the most important, and is often difficult. The signs suggesting malignancy are—the presence of sloughs or phosphatic deposits on the surface of the tumour; a ragged and torn appearance of its villous processes; the absence of a narrow pedicle; the presence of infiltration, which is responsible for a diminution of the normal vesical capacity and for the symptom of frequency; and the presence of a tumour on bimanual examination of the pelvis.

Whichever method is adopted, however, some important pathological properties of vesical papillomata must be borne in mind. First, the ease with which cells of, or portions of, the tumour will implant themselves, and grow, on the apparently intact mucous membrane of the bladder and in other tissues of the host; secondly, the frequency with which multiple tumours occur; thirdly, the frequency with which other and similar growths appear in the bladder months or years after the complete removal of the first; fourthly, the vagueness of the line of demarcation between a simple and malignant tumour, and the fact that a simple papilloma sooner or later usually becomes malignant if untreated. It is clear, therefore, in treating papillomata of the bladder that as far as possible living cells or portions of the tumour should neither be allowed to come in contact with the vesical wall or other tissues of the patient nor be left behind lying free in the bladder, and that, after the cure of one papilloma, the bladder, even in the absence of symptoms, should be examined with the cystoscope every two, or at most three, months at first, and later every six months, over a period of many years.

Technique of Fulguration.

The employment or otherwise of a general anæsthetic varies with the practice of different surgeons. Its use may enable a growth which would otherwise require several applications to be destroyed at one sitting; moreover, the surgeon's attention is not distracted by the thought of giving the patient pain or discomfort; on the other hand, its use adds a definite risk, small though it is. Without a general anæsthetic, the duration of the treatment is limited by the fatigue of the patient induced by the presence of the cystoscope in the urethra, by the discomfort of the distended bladder, and by the pain caused by accidentally touching the sensitive trigone; moreover, the patient, and to some extent the surgeon, are under mental tension throughout. Generally speaking, the smaller the growth, the older the patient (the bladder and urethra being less sensitive in the aged), and the more stolid he is, the less the desirability of a general anæsthetic.

One terminal of the apparatus is connected to a malleable metal plate, which is firmly bandaged to the thigh, suprapubic region of the abdomen, or back. The bladder is gently distended with fluid, the catheterising cystoscope introduced, and the electrode, connected with the other terminal of the apparatus, inserted into the cystoscope. To prevent living cells, or living portions, of the tumour from becoming detached during the subsequent procedure, the surface of the growth should as far as possible be dealt with first. The electrode is gently pushed on to the tumour so that its point lies among the villous processes and in contact with them, and the current turned on. In a few seconds the part of the growth immediately around the electrode turns white, then black, and a little later bubbles begin to appear accompanied by a sound of fizzing and the appearance of an arc. As little arcing as possible should be allowed to occur, and on its appearance the electrode is withdrawn a little, the current switched off, and the procedure repeated at a fresh place. It is important during the withdrawal of the electrode to avoid as far as possible the risk of pulling off pieces of living growth, as, apart from the theoretical objection of liberating living tumour cells, hæmorrhage is liable to be produced; this risk is lessened by keeping the current switched on during the withdrawal; portions of coagulated tissue will, however, often become firmly glued to the electrode and will come away with it. In the case of the smaller tumours the whole growth and its pedicle can in a short time be destroyed in this manner; it is, however, essential to treat a small area of apparently normal mucous membrane immediately surrounding the place of origin of the tumour in the same way; in the case of the larger pedunculated tumours, time can often be saved by cutting through the pedicle, a procedure, however, only to be adopted after the surface of the growth has first been coagulated.

During fulguration the electrode has to be removed frequently and its point scraped free from the pieces of coagulated tissue which become firmly adherent to it and prevent the conduction of the current; from time to time, too, the fluid in the bladder must be changed, partly because of its rise of temperature, which is considerable if much sparking has been allowed to occur, and partly because of its diminution in translucency caused by the presence of blood and particles of coagulated tissue. Should bleeding occur, it can usually be stopped by leaving in the bladder for a few minutes some fluid containing one or two ounces of 1 in 1000 adrenalin solution.

Sometimes, in treating a papilloma growing in the middle line of the trigone, difficulty is caused by the repeated accumulation of bubbles on the lens of the cystoscope obscuring the view; the difficulty can be avoided by turning the patient on his side.

Papillomata growing on the anterior vesical wall, usually recurrences in the scar of a previous suprapubic cystotomy, may be brought into closer relationship with the electrode by an assistant placing his hand on the suprapubic region and pressing backwards the anterior abdominal wall and by only partly filling the bladder with fluid.

If fulguration is carried out under a local anæsthetic, half an hour is about as much as the patient will tolerate, while if under a general anæsthetic, it can be continued for say an hour and a half, but has then to be stopped, sometimes owing to fatigue of the surgeon, sometimes to hæmorrhage obscuring the field of operation, and sometimes, after the whole surface of the tumour has been coagulated, to the necessity of awaiting the separation of the sloughs before the amount of living tumour remaining can be determined.

At the end of the sitting the free sloughs are evacuated with a Bigelow's evacuator, and some

surgeons wash out the bladder with a 1 in 10,000 silver nitrate solution with the object of killing any loose living tumour cells.

Post-operative treatment calls for no special comment. Some urethral discomfort from the presence of the cystoscope in the urethra is usual and a little hæmaturia may occur, but is not severe. In cases in which the tumour or tumours cannot be completely destroyed at one sitting, the next treatment should be undertaken three weeks or a month later. If at the second sitting it is found that no marked diminution in the size of the growth has occurred, its non-malignancy is in grave doubt.

Technique of Suprapubic Removal.

The patient is given a general anæsthetic and the bladder gently distended with fluid. A long paramedian incision is made, extending from the symphysis pubis to the umbilicus or above, the rectus sheath opened, and the peritoneum stripped off the anterior wall of the bladder as far upwards as practicable. To avoid the possible contamination of the wound with living tumour cells which might perhaps be suspended in the fluid, the bladder may now be emptied by the catheter left in situ for the purpose. The patient is put in the Trendelenburg position and the bladder opened by a long vertical incision in its anterior wall. The wound, shielded with rubber pads, is held widely retracted in a good light. Thompson Walker's self-retaining illuminating retractor is useful. Any fluid remaining in the bladder is removed either by a suction tube or by pieces of gauze, care being taken not to touch the papilloma. The amount of infiltration of the vesical wall, if any, must be determined. It is wise as a first step to destroy the whole surface of the tumour with the benzoline or electric cautery or the diathermy apparatus. In the case of the smaller growths, their complete destruction and that of their pedicles and adjacent vesical mucous membrane can be accomplished in this way. In the larger but pedunculated growths, the root of the pedicle is seized with suitable forceps, after the preliminary cauterisation of the surface of the growth, and the tumour with a portion of the normal vesical mucous membrane cut or burnt away; the seizing of the tumour itself with forceps should never be done, as it will almost certainly cause hæmorrhage and the tearing off of portions of the growth. In dealing with the larger but sessile tumours and with those in which infiltration has occurred, a piece of the whole thickness of the vesical wall should be removed with the tumour by means of the knife or cautery, the line of section being kept well clear of the infiltrated tissue. The resulting wound, if made by the knife, is sutured with catgut after ligating the bleeding points, but if made by the cautery is best left to granulate after separation of the sloughs; should the whole thickness of that part of the vesical wall which is covered by peritoneum need to be removed, the knife should be used and the wound carefully sutured. If the tumour is growing on or near a ureteric orifice, no hesitation need be felt in removing that orifice or even a portion of the ureter itself if necessary. In many cases the vesical mucous membrane upon which the papilloma has been resting is dark red, granular, and velvety; the whole of the area thus affected should be cauterised. If thought desirable, the bladder may be washed out with a solution of silver nitrate. Some surgeons prefer to close the suprapubic vesical wound completely, drainage being established by a catheter tied into the urethra for a few days, while others prefer to provide suprapubic drainage; generally, suprapubic drainage is unnecessary unless hæmostasis is incomplete; but sometimes secondary hæmorrhage occurs during convalescence when the sloughs separate, and occasionally is so free as to necessitate reopening the suprapubic wound.

During convalescence the urine should be kept acid and the patient given hexamine, and it is as well to commence the use of this drug a day or so before operation. Whether the patient is submitted to bladder washes or not depends on the practice of different surgeons. In the majority of cases in which suprapubic drainage has not been adopted, the wound heals per primam, and the patient is out of bed at the end of a fortnight; in those in which a suprapubic fistula occurs, the wound closes in from three to six weeks.

At the subsequent cystoscopic examinations very careful inspection should always be made of the suprapubic vesical scar, as recurrences in that situation are not uncommon.

For the undoubtedly malignant tumours an operation planned on the lines indicated above should be performed, a more or less extensive area of the whole thickness of the vesical wall being removed, the procedure amounting to a partial cystectomy. Inoperable cases are of two types. In one the bladder is filled with a mass of papillomatous growth; the only radical treatment is total cystectomy, an operation having so high a mortality that it is rarely performed; sometimes the whole mass of the growth is curetted out and the bladder cauterised, a procedure which, besides causing severe hæmorrhage difficult to control, is almost certain to be followed by recurrence. In the other type the growth invades the extravesical tissues, producing a large, firm, fixed pelvic mass. For both types, in addition to the treatment of symptoms, radium may be employed with advantage; sometimes the patient's existence is so miserable that it is advisable to put the bladder out of court by a bilateral ureterostomy, the ureters being either brought to the surface or inserted into some part of the intestinal tract.

B. C. MAYBURY, F.R.C.S. Eng.,
Surgeon to Out-patients, St. Thomas's Hospital.

Obituary.

JOHN DARLEY WYNNE, M.B., B.CH. DUB., D.P.H.

Dr. J. Darley Wynne, who died on August 4th in Guernsey, was the second son of the late Right Rev. F. R. Wynne, D.D., Bishop of Killaloe. He was educated at St. Columba's College and graduated in arts and medicine at Trinity College, Dublin, gaining the Hudson prize and silver medal of the Adelaide Hospital. He began his medical career in Sheffield, where he was for a time house surgeon to the Jessop Hospital for Women. He was afterwards medical officer to the Nottingham Borough Fever Hospital, and having also gained experience of general practice in that city he returned to Ireland and was for many years one of the leading practitioners in Clonmel, Co. Tipperary. It was during this period that he turned his attention to public health matters, and took with honours the diploma of the Irish Royal Colleges. He was one of the pioneers of the special study of tuberculosis in Ireland and published several papers on the subject, one of which on the Connexion between Cattle Fairs and Tuberculosis in Ireland was an important piece of original observation. Another paper on Dr. Johnson and the Medical Profession was the outcome of a discerning knowledge of English literature. After a severe illness Dr. Wynne left Ireland and took a country practice in Norfolk, but continued ill-health compelled him to seek less strenuous work in Guernsey where he died. In spite of physical disability he remained a hard worker and a keen sportsman almost up to the day of his death; in fact, the final failure of his heart seems to have been determined by a bathe in the sea three days before he died. Yachting, boat-sailing, and swimming were his recreations, and he never lost his love of them. To those who knew him best he was a man who had not lost the charm of youth in spite of ill-health, and he is still remembered with affection by his old colleagues in Sheffield and elsewhere. He leaves a widow and three children.

STUDENTS' GUIDE—SESSION 1925-26.

DENTAL SURGERY.

(*Concluded from p. 519.*)

TEACHING INSTITUTIONS IN DENTISTRY.

OF teaching institutions those connected with the several universities have now been described in some detail, but in addition to these there are a number of institutions which offer facilities to dental students and which are here set out under their localities.

LONDON.

Royal Dental Hospital of London, School of Dental Surgery, Leicester-square.—A school of the University of London. Women are now admitted as students and are eligible for all hospital appointments and school prizes. The school provides the special dental education required by the Royal College of Surgeons for the Licence in Dental Surgery. The general part of the curriculum may be taken at any general hospital. The hospital is open from 9 A.M. to 5 P.M., there being one staff for the morning and another for the afternoon of each day. Pupils are received for the training in dental mechanics recognised by the curriculum. The instructors at the commencement of each session give a course of lectures on Operative Dental Surgery. The five house surgeoncies are held for four months each and are open to all qualified students. The lecturers, in addition to their lectures, give special demonstrations on the Microscopy of Dental Anatomy and Dental Surgery. The lecturer on Dental Mechanics also gives practical demonstrations in the laboratory. There is an Entrance Scholarship in Chemistry and Physics of the value of £25. One Entrance Scholarship in Dental Mechanics and Metallurgy, value £25, open to pupils of the Hospital only. One Entrance Scholarship of £25 in Dental Mechanics, open to pupils of private practitioners. The Saunders Scholarship of £20 and Saunders Prize of £5 awarded to second year students. The Storer Bennett Research Scholarship for Scientific Research in any branch of Dental Surgery, value £50, is awarded triennially. The Alfred Woodhouse Scholarship of £35 and the Robert Woodhouse Prize of £10 for Practical Dental Surgery. The "Lonnon" Bursary of £25 for second year students. Prizes and certificates are awarded by the lecturers for the best examinations in the subjects of their respective courses at the end of the summer and winter sessions. Fee for two years' hospital practice required by the curriculum, including lectures, £70 in one payment, or £73 10*s.* in two yearly instalments. The curriculum requires two years to be passed at a General Hospital; the fee for this is about £52 10*s.* Both hospitals can be attended simultaneously. For the lectures in Chemistry and Physics for the Preliminary Science or Pre-Medical Examination £13 13*s.* The fee for the instruction in Dental Mechanics and the two years' hospital practice required by the curriculum is £200 if paid in one instalment, or 200 guineas if paid in three equal instalments. The fee for tuition in Dental Mechanics is £70 per annum; for one year's hospital practice £28. The Winter Session opens on Oct. 1st.

University College Hospital Dental School, corner of Great Portland and Devonshire-streets, W.—This Hospital and School has recently been thoroughly reorganised, and is now fully equipped with all the most modern appliances. Students are entered as students of University College Hospital, and, as such, attend the classes of Anatomy and Physiology in University College, which is a few minutes' walk from the Dental Department in Great Portland-street, hitherto known as the National Dental Hospital, the first Dental School to admit Women Students. Practical courses to comply with the R.C.S. curriculum are held. Clinical Lectures and Demonstrations are given, and each student on entering passes through a preliminary course under a demonstrator. A calendar containing full information as to lectures, fees, prizes, &c., may be had on application to the Sub-Dean for Dental Students, who attends the Hospital on Monday mornings at 10 o'clock.

Guy's Hospital.—The work of the Dental Department begins daily at 9 A.M. both in the extraction rooms and in the conservation room. The Extraction Rooms: There is ample accommodation for ordinary extractions and anæsthetic extractions, together with waiting- and retiring-rooms. Patients are admitted between 8.45 and 9.30 A.M., and are seen by the dental surgeon for the day, the staff demonstrator, the dental house surgeon, and the dressers. The Conservation Room is open from 9 A.M. till 5 P.M. It has a floor space of over 6000 square feet, and affords accommodation for about 100 dental chairs, with the necessary equipment of the most modern type, for the use of the Dressers, who, under the supervision of the Staff, perform the various operations of Dental Surgery. The members of the staff attend every morning and afternoon to give demonstrations and otherwise assist students in their work in the Conservation Room and Prosthetic Laboratory. The Probationers' Laboratory is supervised by three of the staff demonstrators, and instruction is given in operative dentistry on a "mannikin" to students during their first three months of clinical study. Students in Dental Prosthetics are received, and a graded, systematic, and full course of instruction, extending over two years, is carried out under the supervision of the Director of the Prosthetic Laboratory, assisted by two demonstrators and five mechanics. Dental students have the opportunity of attending at this hospital the whole course of instruction required by the examining board for the B.D.S. Lond. or L.D.S. Eng.—viz., the complete course in dental prosthetics, the special lectures and practice of the Dental Department, and the general lectures and practice of the Medical School. The fees for these two courses may be paid separately or together, or they may be combined with the fees required to be paid for the course for a medical diploma. Students who enter for a medical as well as a dental diploma are allowed to pursue their study of Dentistry during any period of their medical course most convenient to themselves without further charge. Two Entrance Scholarships are awarded in July of each year, a War Memorial Scholarship in Arts of the annual value of £40 for four years; and a Junior Science Scholarship of the value of £40 per annum for not more than four years. Prizes of the aggregate value of £40 are awarded for general proficiency and for skill in Operative Dentistry. The Newland-Pedley Gold Medal for Operative Dentistry is also awarded annually. Dental students are eligible for admission to the Residential College and enjoy the privileges of students in the Medical School. Application should be made to the Dean of the Medical School.

Appointments: All appointments are made according to the merits of the candidates, as determined by a committee of the Dental Staff. Eighteen house surgeons, 15 assistant house surgeons, and 15 clinical assistants, and four student demonstrators of Dental Histology are appointed annually. The following appointments are held by students: Full surgeon's dresser, assistant surgeon's dresser, orthodontia dresser, casualty dresser, clerk to the anæsthetist, dresser in the gas extraction and ordinary extraction rooms, and probationary dresser.

King's College Hospital.—The Dental School is part of the Medical School of King's College Hospital, and was opened in November, 1923. The Dental Out-patient Department of the Hospital is used for the performance of dental extractions. A large Conservation Room with provision for 40 dental chairs has been equipped. Smaller rooms are used for clinical teaching and administrative requirements, and a specially equipped laboratory for training in the art of dental mechanics. An X ray apparatus has been installed for special use in dental skiagraphy. A museum containing a large number of specimens

illustrating oral, buccal, dental, and other diseases is available for teaching purposes. The library, lecture theatre, lecture rooms, common rooms, and the refreshment room are all available for the use of students. Courses of study, including practical work, are provided for the degree of Bachelor of Dental Surgery of the University of London, and for the Diploma in Dental Surgery of the Royal College of Surgeons of England. Special arrangements are made for those students who wish to take a medical degree or qualification in addition to a degree or diploma in Dental Surgery. Full particulars of the Dental School may be obtained on application to the Dean, Dr. H. Willoughby Lyle, or to the Secretary, Mr. S. C. Ranner, M.A., King's College Hospital, Denmark Hill, London, S.E. 5.

London Hospital.—This school is a part of the London Hospital and Medical College, and is fully equipped on the most modern lines and with the latest appliances. It provides a complete curriculum in all subjects for the B.D.S. Degree and for the L.D.S. Diploma, and is admirably adapted for the purpose of teaching. The Conservation Room is well lighted and ventilated and fitted with pump chairs of the latest pattern; the fountain spittoons at many of the chairs have been specially designed. Each spittoon has attached to it a saliva ejector, hot and cold water, compressed air, gas and electric current, also a swing bracket to carry the students' cabinet. Electric sterilisers are supplied in each department and motor engines where required. The School possesses in addition to the Theatres, Laboratories and Museums in the College, a special Museum of Dental Anatomy and Surgery, Operative Dentistry, Prosthetic and Extraction Rooms, and Laboratories for Practical Metallurgy and Prosthesis. A systematic course of instruction is arranged for pupils. The up-to-date Laboratory contains every modern apparatus and is in charge of a skilled curator and his assistants. Connected with the Medical College and Dental School are a Library, Athenæum, Clubs' Union, Dining Hall with moderate tariff, Students' Hostel, and an Athletic Ground. For full particulars as to Scholarships and Prizes, fees and course of study advised, apply to the Dean, Prof. William Wright, who will be glad to make arrangements for anyone wishing to see the Dental School and Medical College.

London (Royal Free Hospital) School of Medicine for Women.—Full courses are arranged for women students, in conjunction with the Royal Dental Hospital, Leicester-square, for the study of dentistry, and in preparation for the B.D.S. Degree of the University of London and the Licence in Dental Surgery of the Royal College of Surgeons of England, at the London (Royal Free Hospital) School of Medicine for Women.

PROVINCIAL.

Birmingham Dental Hospital, Great Charles-street.—Dean: Mr. W. T. Madin. The Dental Hospital was founded in 1858, and was recognised by the Royal College of Surgeons in 1880 for the teaching of Dental Students. Having an annual attendance of about 21,000 patients, it affords every advantage for students about to enter the profession to acquire a thorough practical knowledge, as required by the Medical Council. The present Hospital was opened on July 6th, 1905. It has accommodation for 100 students. The equipment is in accordance with the most modern requirements for the efficient teaching and practice of Dental Surgery. The operations performed annually average 41,000, including 9000 gold and other fillings, and many cases of crowns, bridges, porcelain inlays, and regulations. By arrangements with the Birmingham University and with the General and Queen's Hospitals the entire course of Lectures, Hospital Practice, &c., may be completed for an inclusive fee of £144 4*s.* 6*d.*, or including Mechanical Pupilage, £255 15*s.* 9*d.*, inclusive of Examination fees for L.D.S. Birm. The instruments and materials necessary for Hospital Practice cost about £45. The Composition Fee for the courses required for the L.D.S. of the University, or any of the Corporations alone, is £75, payable in two annual instalments at the commencement of the first and second years; that for the courses required for the L.D.S. and the Degree in Dentistry of the University is £93 15*s.*; that for the L.D.S. in combination with the M.R.C.S. and L.R.C.P. is £115; and that for the M.B., Ch.B., and B.D.S. is £120. All of these composition fees are payable in two annual instalments at the commencement of the first and second years. Each of these fees covers the cost of the courses given at the University for the qualifications indicated, but does not include fees for Hospital teaching, nor Pre-Dental year Chemistry and Physics. For two years' dental hospital practice the fee is £26 5*s.*, payable in two instalments of £13 2*s.* 6*d.* each at the commencement of the first and second (hospital) years respectively. For two years' mechanical pupilage, £111 11*s.* 3*d.*, which may be paid in two annual instalments of £65 12*s.* 6*d.* and £45 18*s.* 9*d.* respectively; mechanical pupils may join for a probationary period of one month, fee £6 11*s.* 3*d.*, which is deducted upon payment of the full amount. For general surgical hospital practice, lectures, and demonstrations: Surgery, two winters, £13 2*s.* 6*d.* A Dental Scholarship is offered annually of the value of £37 10*s.* It is awarded to the student who, entering for the Dental Degree of the University, shall pass the best examination in the subjects studied during his apprenticeship. Application for admission must be sent to the Dean of the Medical Faculty, Mr. William F. Haslam, on or before Sept. 1st.

Leeds University School of Dentistry.—The School of Dentistry is adequately equipped to provide for the complete training of the dental student. The School forms a part of the Leeds School of Medicine, whilst the instruction in clinical and mechanical dentistry is carried out in the Dental Hospital at the General Infirmary. The courses of study are mainly designed to meet the requirements of the B.Ch.D. and L.D.S. Leeds, but every opportunity is afforded to students preparing for the degrees or diplomas of other licensing bodies. Full-time demonstrators give the instruction in clinical dental surgery and prosthetic dentistry, which is carried out under the supervision and direction of members of the Honorary Staff, two of whom are in attendance each day. Special facilities are provided for instruction in Orthodontia and Dental Radiography. Prizes are offered for competition to pupils and students in their respective years of study. Communications should be addressed to the Warden, School of Dentistry, The University, Leeds, from whom a prospectus may be obtained.

Dental Hospital of Manchester.—This hospital is in association for teaching purposes with the University of Manchester and the Royal Infirmary, and is in the centre of a very large population. Courses of study are provided to meet the requirements of the various examining bodies, including those of the University of Manchester for the qualifications L.D.S. and B.D.S., and the L.D.S. of the Royal College of Surgeons of England. Clinical instruction is given in Dental Prosthetics, Operative Dentistry, Diagnosis and Extraction, Orthodontics, Dental Surgery, Radiography, and Anæsthetics by specially appointed Clinical Teachers.

For the whole course of hospital instruction for the L.D.S. (including two years' mechanical training) the fee is £131 5*s.*, paid in instalments. For the two years' Operative Course only, £26 5*s.*, paid in two instalments. For the whole course of hospital instruction for the B.D.S. degree (including mechanical training), £168, paid in instalments. In accordance with the new regulations, L.D.S. students who have taken two years' training in practical Dental Mechanics with a registered practitioner are required to take a further year in the Hospital mechanical laboratory, the fee for this being £63. All the courses of instruction are open to women students. Copies of the Prospectus will be forwarded on application to Mr. J. Hilditch Mathews, Dean.

Newcastle-upon-Tyne Dental Hospital and School.—This hospital is centrally situated (within five minutes of the various colleges, infirmary, and railway station); the rooms are well lighted and thoroughly equipped for carrying on the work. Dental surgeons and an anæsthetist attend each morning. A tutorial dental surgeon and a prosthetic tutor is also in attendance. The Composition Fee for the special Dental Lectures and Dental Hospital Practice is £60 4*s.* if paid in one sum, or £62 6*s.* if paid in two instalments of £31 3*s.* The Composition Fee for the Lectures at the Colleges of Medicine and Science is £67 10*s.*; in addition to this there is a library and an athletic club fee. The fee for General Hospital Practice at the Royal Victoria Infirmary, Newcastle-upon-Tyne, is £23 2*s.* Medals and Certificates of Merit are granted to students showing certain standards of proficiency in the various classes at the Dental School. The prospectus of the Dental Hospital and School, containing full information, may be obtained from either Mr. J. T. Jameson, 12, Windsor-crescent, Newcastle-upon-Tyne, Dean, or Mr. James Coltman, 13, Ellison-place, Newcastle-upon-Tyne, Vice-Dean.

Devon and Exeter Dental Hospital, 24, Southernhay West, Exeter.—Established 1880.—The hospital is open on Mondays, Tuesdays, Wednesdays, Thursdays, Fridays, and Saturdays, and patients are admitted between the hours of 9.30 and 11 A.M. Students attend the practice of the hospital under the control of the medical officers. Honorary treasurer, Mr. J. M. Ackland; secretary, Mr. Albert G. Littlejohn.

SCOTLAND.

The Incorporated Edinburgh Dental Hospital and School.—The Edinburgh Dental Hospital and School is located in spacious and well-equipped buildings at 30, 31, and 32, Chambers-street, and offers special advantages to dental students. A large and important extension of the existing buildings is now in process of construction. The General Courses required for the Dental Diploma may be taken in the Medical School of the Royal Colleges of Physicians and Surgeons or in the University schools. The general hospital attendance and clinical instruction are taken at the Royal Infirmary. The University, Medical Schools, and Royal Infirmary are within three minutes' walk of the Dental Hospital. The special courses are taken in the hospital. The Dental Hospital practice, extending over two years, affords a student ample opportunity for a full acquaintance with every branch of dentistry. The hospital admits a limited number of indentured pupils. They receive their instruction in Mechanical Dentistry concurrently with the general and special courses. A premium of 60 guineas is payable with each such pupil. The practice and lectures of the hospital are recognised by, and qualify for, all the Licensing Boards. The cost of the hospital outfit of instruments is included in the Dental Hospital fee of £42. The minimum cost of classes and Diploma for the whole course of dental instruction amounts to £118 16*s.* Those students who desire to take a Medical and Surgical Diploma in addition to the L.D.S. have in this school admirable facilities for so doing. The triple qualification of the Royal College of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow is recommended. The minimum cost of Professional Education, the Triple Qualification, and the Licence in Dental Surgery amounts to £197 3*s.* 6*d.* The Higher Dental Diploma (H.D.D.) of the Royal College of Surgeons affords an opportunity of obtaining a higher qualification subsequent to registration. The Prospectus, with full information, may be obtained by application to the Dean or the Assistant Secretary.

Incorporated Glasgow Dental Hospital, 158, Renfrew-street and 15, Dalhousie-street, Glasgow.—The School is open to Men and Women Students, and Lectures are given on Dental Surgery, Operative Dental Surgery, Orthodontia, Dental Anatomy and Physiology, Dental Histology, Dental Mechanics, Crown and Bridge work, Dental Metallurgy, Dental Bacteriology, Radiology, Anæsthetics, and Dental Materia Medica. Lectures on general subjects required for Dentistry may be taken at the University or at one of the extra-mural schools where special provision is made for Dental Students. Composition fee for two years' Hospital Practice and Lectures special to Dentistry, £60 on entry, or in two instalments of £35 and £30. A new mechanical laboratory with bench accommodation for 60 pupils and fully equipped with the most modern appliances for teaching practical dental mechanics has recently been added. Fee for two years' tuition, £63, or in two instalments. Full information may be had on application to the Dean.

Glasgow Royal Infirmary (Dental Department).—Mr. W. R. Taylor attends at the Royal Infirmary at 9 A.M. on Wednesdays and other days as arranged. The following course in the curriculum can be taken at St. Mungo's College: Anatomy, six months; Practical Anatomy, nine months; Physiology, six months; Chemistry, six months; Practical Chemistry, three months; Surgery, six months; Medicine, six months; Materia Medica, three months; Clinical Surgery, six months; Dental Surgery, six months, and attendance for two years on the dental department of the hospital.

IRELAND.

Incorporated Dental Hospital of Ireland, Lincoln-place, Dublin.—All Dental Students who have passed their First Dental Examination in the Royal College of Surgeons in Ireland (or an equivalent examination or examinations) are admissible to the Clinical Instruction of the Hospital. In addition to Clinical Instruction and Special Demonstrations, courses of lectures are given at the hospital on Dental Surgery and Pathology, Mechanical Dentistry, the Administration of Anæsthetics, Orthodontia, Dental Anatomy, and Dental Materia Medica, and instruction in Anæsthetics. Fees: Hospital Practice (each year), £18 18*s.*; Lectures, £5 5*s.* The course in practical Dental Mechanics can be taken in the Hospital Laboratory. Further particulars can be obtained from the Dean.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdrs.: E. S. Mellor to *Kellett*; H. L. P. Peregrine, A. Craig, C. N. Ratcliffe, J. F. Haynes, K. A. I. Mackenzie, G. Aubrey, R. E. Bampling, and H. L. Douglas to *President*, addl., for five months' course of instruction.

Surg. Lt.-Comdr. L. F. Strugnell, R.N., has been awarded Sir Gilbert Blane's Gold Medal, he having obtained a first-class certificate at the examinations held in 1925 for promotion to the rank of Surgeon Commander.

ROYAL AUSTRALIAN NAVY.

Surg. Comdr. W. J. Carr to *President*, addl., for five months' course of instruction.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Lt. D. Bertram to *Ajax* for 28 days' training.

D. R. W. Burbury entered as Proby. Surg. Sub-Lt., and attached to the London Division.

ROYAL ARMY MEDICAL CORPS.

Temp. Capt. R. C. H. Francis relinquishes his commn. and retains the rank of Capt.

The undermentioned Lts. (on prob.) are confirmed in their rank: R. A. Bennett, W. H. Carter, W. D. Speedy, W. A. D. Drummond, J. G. E. Vachell, J. N. Atkinson, J. D. Corner, and J. T. Smyth.

ROYAL AIR FORCE.

Flight Lt. T. P. Harpur resigns his temp. commn.

COLONIAL MEDICAL SERVICE.

Dr. J. A. Beamish, medical officer, West African Medical Service, serving in the Gold Coast, has been appointed to be a Senior Medical Officer in Nigeria, with effect from Feb. 13th, 1925, in succession to Dr. T. M. R. Leonard, D.S.O., promoted to be Assistant Director of Medical Services in that colony.

Special Articles.

INTERNATIONAL CONGRESS OF CHILD WELFARE.

THE first International Congress on Child Welfare, as noted in THE LANCET last week (p. 509), was held at Geneva from August 24th to 31st. It was presided over by Mr. André Oltramore of Geneva, and was well attended; over 800 delegates from all parts were present, including some 200 British representatives. The inaugural meeting was opened by Mr. Haeberlin, Vice-President of the Swiss Federal Council. The speakers included Prof. C. Pirquet (Vienna), the President of the Hygiene and Medicine Section, Mr. Georges Scelle (professor of international law at Dijon), President of the Social Welfare and Administration Section, and representatives of 12 other countries. The Marchioness of Aberdeen and Temair, speaking as President of the Education and Propaganda Section, referred to the work done by the International Council of Women (of which she was the President) in drawing up the declaration of the rights of the child, now called the Declaration of Geneva. Dr. Luis Morquio, the provisional director of the American International Bureau for the Protection of Childhood at Monte Video, in the course of his address, mentioned that at the Congress at Santiago (Chili) in 1924 all the delegates signed the declaration.

The Exhibition.

In the afternoon the exhibition was visited officially by Mr. Haeberlin. The comprehensive exhibit of Great Britain with over 2000 items included several excellent health posters. The Swiss exhibit was particularly good; Pro Juventute, an organisation centring in Zurich, which possesses three travelling exhibitions, showed an excellent display, which included articles used in the Froebel and Montessori methods of teaching. This society organises work for children's leisure hours. The Union International de Secours aux Enfants, located at Geneva, set out the help given by 35 countries to the children of 38 other countries. The most striking feature of the French exhibit illustrated the work carried out by Mme. J. René Dubost in placing babies in families in Mainville and Milly, where they are visited regularly by English nurses and taken weekly to the local infant welfare centre also established by Mme. Dubost. Later the children are boarded out by the Assistance Publique in peasant families on farms. The most prominent Austrian exhibits illustrated the activities of the municipality of Vienna and the work of the Art School of Prof. Cizek, also of Vienna. The German exhibit, which was extremely well arranged, illustrated the work of the German Red Cross and the national equivalent of our "Save the Children Fund."

Sectional Meetings.

On Tuesday morning the sections met. The Medical Section dealt with the measures used in different countries to reduce infantile mortality before and after birth, tracing the problem back as far as the advocacy of the marriage of healthy parents. Dr. Rott (Berlin) spoke on prematurity; Prof. Pinard (Paris) referred to the evils of separating a child from its mother.

Infant Mortality.

Dr. A. K. Chalmers (Glasgow) held that we ought to consider whether the special decline of the infantile mortality-rate in our country was due to our efforts, or whether it were a biological phenomenon. He said that a decline had been recorded in all the countries of Western Europe, even in those where very little preventive work had been done, and that the mortality was increasing in some countries, such as Egypt, in spite of administrative efforts. The fall in the rate in the British Isles had occurred in the children of a generation which had profited by the important addition of foreign meat to their food-supply. He thought we had not done enough to interest and educate fathers. The need at present was to get mothers to appreciate the value of the medical supervision of children between 1 and 5 years of age. He had found the mothers in Glasgow unwilling to avail themselves of antenatal care until one mother profited; she became an ardent apostle, and after that there was no difficulty in filling the clinics. Mme. Vivier-Robert (Strasbourg) indicated the importance attached in Alsace-Lorraine to the work of the health visitor. The members of the audience were very much impressed by the close correlation of the fall in infantile mortality, with the dates of the introduction of various specific preventive measures. Dr. Bornstein (Berlin) and Dr. A. Koller (Lausanne) spoke on alcohol in this connexion; both considered alcoholic habits and the alcoholised constitution of parents responsible for a considerable part of infantile mortality.

Prof. Winifred Cullis (London) referred to the striking reduction in infantile mortality from syphilis brought about by the treatment of pregnant women in Scotland and London.

The Feeding of Children.

In the discussion on the feeding of children of all ages Dr. R. C. Jewesbury (St. Thomas's Hospital) expressed his belief that no artificial preparation could take the place of breast-milk. He referred to the possibility of re-establishing lactation after it had ceased for six to seven weeks, also to the absence of any organisation in England for supplying wet nurses. He would like a uniform system of feeding adopted in England. Prof. Taillens (Lausanne) also held that every effort to lessen infantile mortality must take breast-feeding as its fundamental principle. A valuable paper on the feeding of the pre-school child was read by Prof. Bernheim-Karrer (Zurich); he thought that digestive disturbances due to faulty feeding were increasing; he had found that over-feeding with milk caused constipation, and even anæmia if too little fruit and vegetables were given. Dr. E. Nobel (Vienna) thought that for the school child breakfast should be one of the principal meals and equal in nutritive value to the midday and evening meals; during the morning and afternoon there should be two light meals.

Prof. R. G. Freeman (New York) described clean milking on a farm which supplied New York and showed slides, one of which demonstrated how a cow was prevented from lying down between grooming and milking. He said that bovine tuberculosis was being rapidly eliminated in the United States. Prof. Caronia (Rome), in an interpolated paper, dealt with his recent work on the prophylaxis of measles and scarlet fever; the part of the paper that dealt with measles was discussed by Dr. E. Nobel.

Heliotherapy.

On Thursday morning during the discussion on heliotherapy, Dr. Knut Wejdling (Stockholm) emphasised the importance of giving cod-liver oil with the light treatment. Dr. A. Rollier (Leysin) showed a series of slides demonstrating the results of the work carried out at Leysin. Dr. P. F. Armand-Delille (Paris), in an interpolated paper on tuberculosis, written in collaboration with Dr. Lestoquoy, described the work of the Œuvre Grancher, which places the healthy children of tuberculous parents in families living in the country. Drs. Messerly (Lausanne), Chatin (Lyon), Mme. Vivier-Robert (Commissariat-General de la République, Strasbourg) described the work done in their areas. The paper of Dr. O. Bernhard (St. Moritz), the originator of the use of sunlight in surgery, should be read in full. Dr. C. W. Saleeby (London), in a model address, referred to the glass made in Birmingham for windows which contains no lead and no large atoms to prevent the passage of the ultra-violet rays.

Orthopædics.

The chief addresses on the prevention of crippling in children were given by Prof. Hans Spitzy (Vienna), Mr. R. C. Elmslie (St. Bartholomew's Hospital), and Dr. Murk Jansen (Leiden). Prof. Spitzy showed slides illustrating what to do and what not to do to prevent deformities of growth during the critical period of life until the baby has acquired the upright position. On the walls of the room were displayed some extraordinarily good original pictures in colours by Udo Weith, with suitable text, dealing with the prevention of crippling. Mr. Elmslie, whose contribution also evoked great applause, thought that medical inspection in London schools was responsible for the large reduction in the number of cases of scoliosis. He asked the representatives of other nations to publish an account of the organisation of the work for cripples in their countries, and mentioned that many of the British orthopædic surgeons who had worked under Sir Robert Jones during the war had become personal friends and were thus able to meet and discuss their various difficulties and new methods.

Dr. Murk Jansen was much concerned at the evil effects on the offspring of excessive smoking by the expectant father and mother. He considered that the tobacco habit had a marked effect on growing cells. Some of the most valuable of the papers of the congress dealt with the unification of the prenatal, neonatal, and later infantile mortality statistics of different countries. Dr. Rott (Berlin) explained the importance of the work of the subcommittee of the League of Nations, which had formulated a definition of stillbirth for international use; Dr. L. I. Dublin, the statistician of the Metropolitan Life Assurance Company, New York, pointed out that in the States 4 per cent. of the total births are stillbirths, and that their number is practically the same as the number of deaths which take place during the second to twelfth months of life. Yet very little statistical work was or could be done by any country at present. Dr. Marcel Ney (Berne) also read a valuable paper on this subject.

In the other sections the chief papers of medical interest were read by Dr. Th. Simon (France) and Mr. Cyril Burt (London) on the standardisation of the definition of mental deficiency and its different degrees, and by Dr. D. C. Kirkhope (Tottenham) on the education of public opinion in child welfare.

At the concluding meeting of the Congress a number of resolutions were passed summing up the recommendations made during the meetings of the sections.

Excursions.

A pleasant feature of the Congress were the informal receptions held by Prof. and Frau Pirquet. After a trip on the lake the Medical Section were charmingly entertained by the Genevese Medical Society and the other sections by Mme. Gustave Hentsch and Mr. Edmond Chenevière. During the Congress visits were paid to local institutions in Geneva, including le Rayon de Soleil at Frontenex, an adapted football stand and pavilion; one of the three open-air schools; a *pouponnière* at Orange Canal; a home for unmarried mothers (La Retraite); the J. J. Rousseau Institute for research work in child study and experimental pedagogy; and the Cantonal Hospital with its maternity and isolation blocks. Unofficial visits were paid to see Mr. Spahlinger and his work, to Dr. Rollier at Leysin under the guidance of Dr. King Brown, and to the Institut d'Hygiène, where Mr. Maurice Valerien briefly indicated the chief sanitary features of the city and of the Canton of Geneva, and to Nestlé's milk factory at Vevey.

On Saturday the Congress visited Leysin, the village which has grown up round Dr. Rollier's first clinic, a modest chalet since expanded into 32 establishments capable of dealing with 1000 adults and 300 children at a time. Although many know the work from the film shown in England, nothing but a visit to the village can enable anyone to envisage the place as a whole in the beauty and charm of its setting. It is evident that although the pioneer work carried out at Leysin by Dr. Rollier and his large staff has been and still is of great value, the organisation of the work of a similar kind in England to-day is equally good; the arrangements for the education of the child of school age while under treatment have, perhaps, been somewhat better organised owing largely to the work of the Board of Education; the after-care work in our country is also better. Possibly we have something still to provide in the way of arrangements for manual work for adults.

A visit was subsequently paid to Zurich under the guidance of Dr. Pfeiffer of the Pro Juventute Foundation. An unpretentious but well-run epileptic institution was inspected, under the charge of Dr. A. Ulrich, who considered sedobrol and a salt-free diet of great value. At the Orthopædic Hospital, Anstalt Balgrist, an address was given by Dr. Richard Scherb, and the good following-up system was described. At the Cantonal Institution for Blind and Deaf and Dumb Children the two types were kept entirely apart. Oral teaching only was carried on for the deaf and dumb; if a child could not be taught by this method it was not retained in the institution. The bedrooms for the children were good enough for a first-class hotel.

In the afternoon a pleasant home for unmarried mothers was visited with 16 beds and 30 cots; the mothers were confined here and allowed to remain in for another six weeks, the babies might be left in for two years or even more; later to the Children's Hospital and Polyclinic, of which Prof. E. Feer is the director. Here the most interesting feature were the glass cubicles in the observation block used for definite and suspected cases of infectious diseases. The visitors were informed that congenital syphilis had been so rooted out of Zurich that it was difficult to find clinical material for the students.

The conference as a whole was remarkably successful; it not only brought together fellow workers from many countries, but also provided matter for subsequent study by the technical experts.

THE "MEDICAL CENTRE" OF NEW YORK.

THE erection of the Columbia Presbyterian Medical Centre has now commenced and it is hoped to make of New York one of the world's greatest centres of medical teaching and research. The site occupies an area of 20 acres overlooking the Hudson River. The first building will be the new home of the Presbyterian Hospital and of the College of Physicians and Surgeons of Columbia University. This building will contain some 23,000,000 cubic feet, or one and a half times the space in the Woolworth Building in New York, the tallest building in the world at present. It is hoped ultimately to group together many medical institutions, covering many fields of treatment, education, and research which, though independent, will nevertheless coördinate the service of the sick and further the cause of health. Provision will be made for 1400 beds. The institutions already included in the plan, in addition to the two mentioned above, are the State Psychiatric Institute and Hospital, the Neurological Institute, the Babies Hospital, the Sloane Hospital for Women, the Vanderbilt Clinic, and the Presbyterian Hospital School for Nursing. All these are established institutions carrying on their work in old buildings in other parts of New York, and it is expected that their removal to new and larger premises at the medical centre will be effected with little or no interruption to their routine. Other institutions which it is hoped to include in the centre are ear, eye, nose, throat, and skin hospitals, a dental school, training schools for public health and social workers, a convalescent home,

as well as dormitories for students and housing for the staff and personnel.

The Presbyterian Hospital Building will have 17 stories; the first floor and mezzanine will be for administrative uses and the next 13 will be ward floors. Above them will come an operating floor and mezzanine, while on the top floor will be an open-air gymnasium, loggias, and a recreation roof. Each ward floor will be as nearly as possible a hospital in itself, with 64 beds, divided into single and small wards. Attached to them will be a laboratory, treatment rooms, service rooms, three solaria, and a reception and lecture room on each floor. Each floor will have its own permanent nursing staff. In this way the patient will have all the advantages attaching to a small institution while at the same time commanding the resources of the centre as a whole. The private patients' pavilion will have 125 rooms, and there will be accommodation for relatives and friends who wish to live near the patients for a short period.

The medical school of Columbia University will have a building of the same height as the hospital building and connected with it on all the floors by an axis in which will be offices for the doctors and rooms for equipment to be used by both the school and the hospital. Included in the plan is an operating amphitheatre to serve the group and afford a clinical meeting-place for medical congresses. A unit corresponding to the medical section is reserved for the future development of the Vanderbilt Clinic, while the site for the Babies Hospital will be large enough to accommodate some 160 beds, thus enabling it to extend its work to include older children as well as infants. The Presbyterian Hospital of Nursing will have a building for 400 nurses. The eighth floor of the General Hospital Building will be devoted to the Squier Urological Clinic and will represent a self-contained unit devoted to bladder and kidney surgery, equipped with the most modern methods of diagnosis, with accommodation for 64 patients. Special floors will be allotted to the Sloane Maternity Hospital, which will have an obstetrical ward capacity of about 125 beds; while the Neurological Institute will need space for 200 beds, the number allocated to the State Psychiatric Institute and Hospital, now located on Ward's Island. There is distinct need for a recovery home which, it is hoped, will be erected on Riverside Drive, where the patient will have the advantage of being easily accessible to those under whose observation he should remain while recuperating.

The Columbia Presbyterian Medical Centre as it will appear when completed. The new Presbyterian Hospital, now under construction, is the nearer half of the large central unit.

Special attention will be devoted to the housing of the students and personnel. The keynote of the medical centre will be coöperation. It will be not so much a single organisation as a community in which everyone is concerned with the same general problem of restoring the patients to health and keeping them well afterwards. Each institution will retain its independence and will have its own trustees or managers, but they will all work together through the joint administrative board, composed of representative physicians and laymen.

While the cost of the buildings now in progress is estimated at $10,000,000, the final cost of the centre can only be vaguely guessed at at present. It certainly will run into many millions sterling. In the same way, it is difficult to estimate the time it will take to evolve the project to its fullest possibilities. The present belief is that it will need a generation, but maybe some public-spirited millionaires will come forward and provide the funds to carry the scheme to completion in ten or a dozen years from now.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Restriction of Hospital Beds Under Government Control.

FOLLOWING the stringent measures of economy, to which our budget is forced by the control of the League of Nations, a number of Viennese hospitals are to be closed down because the beds in these institutions are not in full-time occupation. Owing to the new hospitals erected on the outskirts of the city within the last 15 years, and to the numerous well-equipped new hospitals in the smaller provincial towns, the sick and the ailing do not flock to Vienna as they used to do. The diminution of the number of inhabitants of our country—now 6½ millions against 56 millions formerly—has also had its effect. The Government has found it more feasible to distribute the patients all over the country, thus keeping the minor hospitals in the provinces fairly busy. Not only has this scheme advantages from the point of view of economy, most of these hospitals being maintained by the local authorities, but it also promotes the general professional standing of the country doctors. Three hospitals have thus already been closed in Vienna, and the fourth—the Poliklinik, well known to every student of medicine in Vienna—has only escaped this fate through reorganisation; it is now rapidly becoming a hospital for the middle-class citizen with limited means. Its out-patient department, however, is working as usual. In order to understand the situation it must be added that in this country until 30 years ago all hospitals were Government institutes, with the exception of a couple or so of private hospitals, and one municipal hospital in Vienna. The system of hospital support by voluntary contributions is not known here. Local hospitals, indeed, were erected not very long ago in smaller towns by the municipalities and in Vienna by private corporations, but they soon had to fall back on Government support, especially in the years 1914–24. Now conditions have changed. What we really do want is not so much an increase of general hospital beds, but tuberculosis beds. Even here, however, our expenditure is curtailed by the urgent order of the "League" for economy.

Is the Human Saliva Poisonous?

An incident occurred recently in a public bath which has caused comment in medical circles. The facts are as follows: A girl of 15 was playfully bitten by a young man on the thigh whilst the two were enjoying themselves in one of our public sunbaths. The girl applied for medical help, stating that the bite had been caused by a dog, and was promptly sent to the hydrophobia department of the institution for experimental pathology. There she underwent a course of anti-rabic injections. She soon developed marked weakness, hypersensibility of the skin, pyrexia, and gradually symptoms of paralysis of several limbs appeared. After about a dozen injections the girl died. Rumours soon spread that she died in consequence of the injections, especially when her girl friends volunteered the information that the bite was inflicted not by a dog but by a young man. Police investigations were at once instituted and a post-mortem was obtained, in which it became clear that the girl had died from acute poliomyelitis, the fatal illness having no connexion either with the bite or the injections. But in the course of the public discussion, Dr. Kraus published an essay in which he set forth present knowledge regarding the toxicity of the human saliva. Many authors in the past, including Galen and Pliny the Younger, have pointed out that this fluid has a special activity. In comparatively modern times, about 90 years ago, Eberle reported from personal experiment that saliva had toxic effects, this quality depending on emotional conditions. A series of investigations were conducted by Pasteur in his laboratory, showing that over 32 different strains of pathological micro-organisms have been isolated from human saliva, some with distinct virulent effects, besides about 20 strains of non-virulent type. Dentists know very well that the mouth is a focus of infection. The assumption that the girl died from the human bite could not therefore be repudiated off-hand. But investigation proved that by a coincidence death had occurred from an infectious disease and was quite unconnected with the playful assault.

Two Distinguished Medical Contemporaries.

One of the most eminent of the Vienna medical teachers, Prof. N. Ortner, director of the second medical clinic in our city, recently celebrated his sixtieth birthday. A native of the city of Linz, he studied in Vienna in the clinics of Bamberger and Neusser. As assistant to the latter he found excellent opportunities for the study of numerous pathological conditions. His chief attention centred at that time in the conditions of the liver and gall-bladder, and his books on "Cholelithiasis" and "Infection of the Bile-ducts" won for him the gold medal of the Vienna University. Between 1895 and 1899 he published a series of papers on diseases of the vagus, paralysis of the recurrens, and on adventitious murmurs in peritonitis and pseudo-pericarditis, which showed a brilliant gift of keen observation. He thereafter published a series of lectures on special therapy of internal diseases, a concise and easily intelligible contribution to modern medicine. He was called to Innsbruck as clinical teacher (1907–11), but in 1911 he was recalled to Vienna and since that time has acted as a prominent member of the teaching staff of the university. Ortner is held in high esteem by his colleagues, as the recent "festschrift," published by the *Wiener medicinische Wochenschrift* showed.—Another birthday jubilee has also been celebrated recently. The well-known ophthalmologist, Dr. S. Klein, completed his eightieth year in full health. He was one of the first pupils of Täger, and is the only man here who still examines the fundus with Täger's ophthalmoscope, a method of excellent value, but hardly known to the younger generation. Klein's merits are on the diagnostic and therapeutic side of his science, and his skill as an operator is still a joy to those privileged to watch him.

SOUTH AFRICA.

(FROM OUR OWN CORRESPONDENT.)

Medical Congress at Maritzburg.

THE twentieth South African Medical Congress was opened in the Town Hall, Maritzburg, Natal, on July 6th, by Sir John Dove-Wilson, the Natal Judge President and President of the Council of Natal University College. There were 120 delegates present from all parts of the Union of South Africa and Rhodesia. Sir F. Spencer Lister, representing the South African Committee of the British Medical Association, inducted Dr. Dugald Campbell Watt, J.P., one of the oldest practitioners in Maritzburg, to the chair as President of the South African Medical Congress. Sir John Dove-Wilson, in his address, said his endeavour was to emphasise the extent to which the two professions of medicine and law are associated in a common task, and to acknowledge the great debt which the law owes to medicine for its loyal assistance and coöperation in the great work of doing justice between man and man. He dealt with the difficult problem of professional secrecy, and remarked that patients had no right to expect, or doctors to demand, that knowledge gained in their professional capacity should not be divulged by doctors in a court of law when it was relative to the matters at issue.

The President said that it was 20 years since a medical congress had been held in Maritzburg, and

many changes had taken place. He recalled his predecessor in the chair in that city 20 years ago, Colonel James Hyslop, D.S.O., V.D., M.D., a man honoured in his day and generation. As against the sad and inevitable losses that the efflux of time had caused, they had seen in those passing years the advent of many young, energetic, and well-qualified colleagues, both eager and able to carry on the ideals and duties of their profession.

The President's address dealt mainly with the necessity for a spirit of unity, and outlined the history of medical associations in general and the S.A.M.A in particular. He said that the science and art of medicine in all its branches had become so intricate, extensive, and profound that no one human brain, however brilliant, could hope to reach the highest standard of efficiency in all. The practitioner was, therefore, compelled to collaborate with others who had; after qualifying, made one subject or another their special study. Strength was much required for the vigorous prosecution of their work in all its branches—from research to clinical—and this could only be effectively utilised and developed by uniting the whole of the necessary forces in the State, both lay and professional. All had one object in view: the greater alleviation of suffering, the abolition of the causes of disease, and the propagation of a sane, healthy, and virile population. It was the duty of the State to afford them its moral and financial support.

On the first evening of the Congress a public lecture was given in the Town Hall, Maritzburg, by Dr. Shadick Higgins, M.O.H., Cape Town, recently medical officer of health for St. Pancras. His subject was Public Health in Relation to Social Welfare. Ten papers were read at the Section of Medicine and Mental Hygiene, under the presidency of Dr. E. P. Baumann. The meeting opened with a paper by Dr. R. L. Girdwood on Focal Infection. The Surgical Section met under the presidency of Dr. A. McKenzie to discuss the Treatment of Carcinoma of the Breast, the subject being introduced by Mr. H. A. Moffat. The Public Health Section discussed the milk-supply and had two subsections for M.O.H.'s and school M.O.'s respectively. The causation and prevention of fœtal death was discussed at the Obstetrical Section under the presidency of Dr. A. Simpson Wells, and a special discussion on the work of the laboratory in relation to the practice of medicine was opened by Sir F. Spencer Lister.

Obituaries.

The late Dr. J. A. Clements had filled the post of Government district surgeon for the Umsinga district of Natal, and was an extremely popular and honoured officer. His death followed an operation for internal ulcer.—The late Dr. Wynn Westcott had become a resident of South Africa after his retirement from the coronership in London. He had attained much distinction in Blue Masonry and had been a Master of Lodge Quatuor Coronati, the membership of which is restricted to Masons noted for original research and literary work. He was also a student of the Kabalistic philosophy, Hermetic writings, and the work of the alchymists and Rosicrucians, of which latter he held the office of Supreme Magus.

A Central Leprosy Hospital.

The Union Leprosy Commission concluded its deliberations at Cape Town on June 24th, and will not meet again this year. According to *Die Burger*, the Commission recommends doing away with all the several smaller isolation places and having one central leprosy hospital in Pretoria, as being the most suitable position. The idea is to make this hospital a modern model institution, and the Commission, it is stated, has worked out a scheme which will save the Union Department of Public Health about £20,000 a year. Some members of the Commission were in favour of having a medical expert specially brought to South Africa in order to advise the Government on the building and fitting out of the proposed hospital.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Irish Free State and the Medical Register.

THE controversy on the question of medical registration in the Irish Free State is still carried on in the Irish press, but it has shown a milder tendency in the past ten days. This change of atmosphere is due in large measure to the conciliatory attitude taken by Mr. Cosgrave, the President of the Irish Free State. In reply to a memorandum sent to him by the President and Fellows of the Royal College of Physicians, he invited the College to send a deputation to discuss the matter with him. The deputation met him on Sept. 3rd, and a frank discussion was held on the present situation. Mr. Cosgrave was firm on the point that the Government was determined to establish a medical register for the Irish Free State, and, if forced, was prepared to go to the country and fight the matter at the meetings. The Government had not yet framed a Bill, and he invited the coöperation of the profession in its drafting. As soon as the Bill was framed it was the intention of the Government to approach the English Government with the view of obtaining some sort of reciprocity between the two countries; and he believed that he would obtain such a measure of reciprocity as would not endanger the status of persons seeking Irish medical qualifications. The deputation urged that, if the Government were determined to set up a medical council and register in the Free State, the existing conditions should be allowed to continue until such time as that had been accomplished. Mr. Cosgrave, while remaining sympathetic towards this view, pointed out that any such continuation of the existing conditions would be granted only on the condition that prolongation was not used for the purpose of delaying the establishment of an Irish register.

Mr. Cosgrave has invited the members of the Consultative Committee, consisting of representatives of the educational bodies and of the medical profession, to meet him in conference on Sept. 9th. In the meantime, the meeting of protest, to be held on Sept. 8th, will have contented itself with a recognition of Mr. Cosgrave's conciliatory attitude.

Sept. 7th.

INDIA.

(FROM OUR OWN CORRESPONDENT.)

A General Medical Council for India.

IT is interesting to learn that a private member proposes to introduce, in the coming session of the Indian Legislative Assembly, a Bill for the formation of a Council of Medical Education in India. The idea is to create a body on the lines of the General Medical Council of the United Kingdom for controlling medical education under the direction of the medical profession. As one of the objects of the measure will be to establish a qualification in the indigenous methods of treatment of disease, it is not surprising that disapproval has been warmly expressed at a meeting of medical men held in Bombay.

The Committee appointed by the United Provinces Government to advise them regarding the best means to be adopted for improving the Ayurvedic and Unani systems has commenced its labours, but it will be some time before it presents its report.

The Supply of Medical Students.

At the Medical College, Calcutta, 120 vacancies were announced for the last winter session, and there were 1000 applications. The Government of Bengal control the college, and were therefore able to issue specific orders as to the qualifications of applicants. The most noteworthy of these were: (1) that a few places were reserved for men who had taken the B.Sc. degree; (2) that half were reserved for candidates who had passed high up in the intermediate science

examination; (3) that four places were reserved for the sons of distinguished medical men; and (4) that only five places were reserved for women students.

Broadcasting Epidemiological Information.

It was decided at a conference attended by delegates from 12 Far Eastern administrations that the first appearance in any part of Asia or Australia of cholera, plague, small-pox, yellow fever, or the unusual prevalence of any other infectious disease, should be immediately reported to the Far Eastern Epidemiological Bureau, and that a weekly bulletin should be despatched recording: (1) The mortality from these diseases; (2) the existence of plague infection among rats; and (3) notes of unusual epidemics. The information collected by telegraph from the various Governments is broadcasted by the Government of French Indo-China from their wireless station at Saigon, and in India this information is received at Simla by the Public Health Commissioner with the Government, and then distributed to the health officers of the large Indian ports, who have thus, each Saturday morning, detailed information regarding the health of the major ports of the Far East up to the midnight of the previous Saturday.

Extended Distribution of Anti-Rabic Vaccine.

The Pasteur Institute at Kasauli is now issuing vaccines on a large scale to various centres for anti-rabic treatment. Prior to Jan. 1st of the present year, the only regular issue of vaccine was to a railway centre at Allahabad, but recently a centre was opened by the Punjab Government at Lahore, one at Rawalpindi for soldiers, and another at Rajkote, in Kathiawar, and these are likely to be followed by others in various parts of India. The Behar and Orissa Governments have decided, moreover, to open a centre and make their own vaccine. These developments enable patients to be treated in their own districts.

Child Welfare Work in Madras.

The Government in reviewing the report on child welfare work for the quarter ending March 31st, 1925, state that only three district boards, 23 taluk boards, and 34 municipalities have sent in reports of their work. There are only 45 centres in the Presidency for a population of over 43 millions. The districts of Cuddapah, Kurnool, Guntur, Nellore, and Malabar do not possess a single child welfare centre. On the other hand, there are eight centres working in the Chittoor district, and among the remaining districts, three—the Nilgiris, Vizagapatam, and Chingleput—have four centres each, two others have three centres each, six have two each, while the rest have one centre each. The municipalities of Chingleput, Madura, Vellore, Tanjore, and Ootacamund have each of them two centres, the two at Chingleput having been organised and maintained by the Red Cross Society. Only seven new centres were opened in the Presidency in the year under review, in spite of the Government's special appeal in the last year's review. Thirteen local bodies have organised committees for intensive child welfare propaganda and the inauguration of new centres wherever feasible. To facilitate the opening of more child welfare centres and their efficient working the Government have decided, as an experimental measure, to train four women as health visitors with a view to their subsequent employment by local bodies.

A successful "Baby Week" was recently organised in Poona.

Training and Employment of Qualified Midwives.

Only 17 municipalities and eight taluk boards are so far known to have employed qualified midwives in their service. Of these, four were appointed during the year under review by the municipal councils of Villupuram and Cuddalore, and the taluk boards of Perambalur and Koilkuntla. The appeal made by the Director of Public Health to the local bodies to take steps for the training of midwives did not meet with sufficient response. The supervision of the work of trained "dhais" and the improvement brought about by training do not seem to have been adequate.

Medical Inspection of School-children in Madras.

The system of inspection of pupils in recognised secondary schools sanctioned in 1920 is now to be put into force. The inspection will be confined for the present to recognised secondary schools for boys, school departments of colleges and training schools, and will be carried out annually by local practitioners selected by the local boards of management or the Director of Public Instruction in consultation with the Surgeon-General. The aim will be to ascertain the general physical condition of the pupil, the treatment of those suffering from disease being left to the parents. The management of the school undertakes to maintain the records and submit the required returns.

Meagre Hospital Facilities in Bombay.

The Government of Bombay has addressed the municipality on the subject of the inadequate hospital accommodation provided in Bombay, in comparison with its population and importance. The number of beds available for the treatment of general diseases is only 526, or approximately 1 bed for every 2000 of the population. On making a comparison with the other leading cities of India, it has been found that the number of beds per 1000 of the population is as follows: Lahore, 7·2; Madras, 3·4; Calcutta, 2·6; Bombay, 0·5. The Government call for a conference to discuss the subject of medical relief in the great city which has been aptly called "The Gateway of India."

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the health statistics of six counties for 1924:—

Name of county.	Mid-year population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Resp. diseases with Influenza.	Neonatal mortality.	Infant mortality.	Maternal mort. from childbirth.
Surrey	742,900	14·9	10·6	0·80	1·45	2·0	—	52	3·6
Wiltshire	295,100	17·1	11·4	0·83	—	—	—	55	4·0
Northampton-shire	215,200	16·2	11·6	0·91	1·31	1·9	—	52	3·4
Warwickshire ..	358,300	18·8	11·0	0·89	1·25	1·9	—	60	4·3
Leicestershire ..	273,100	18·8	11·7	1·01	1·29	2·2	—	60	2·7
Fife (landward area)	108,161	24·0	12·2	0·83	1·06	2·4	—	84	3·1

Surrey.

Dr. Joseph Cates reports that the infant mortality and general death-rate are slightly higher than in 1923, and that influenza and its respiratory complications were among the causes of this increased death-rate. The county council now has a comprehensive and compact scheme for all branches of home visitation which has been evolved so as to obviate overlapping. The county is divided into 12 areas. In each area there is an assistant medical officer, who carries out school medical inspection and treatment, maternity and child welfare and dispensary duties. Three or four health visitors, who are fully trained nurses and hold the certificate of the C.M.B. and the health visitors' certificate of the Royal Sanitary Institute, are allocated to each area. These health visitors carry out antenatal and birth visita-

tion, follow up defects discovered in the scholars of the elementary and secondary schools, inquire into tuberculosis, supervise the mentally and physically defective, and visit the blind.

Surrey now has an organised scheme for the discovery and treatment of crippling defects. Children are referred to the assistant medical officers by the health visitors, teachers, school attendance officers, and voluntary workers, and after examination are sent to the orthopædic centres included in the scheme. Children of school age, who reach the centres on the advice of medical practitioners and other agencies, are seen by the assistant medical officers before the committee accepts liability for treatment. The approved orthopædic centres are the Guildford County Hospital, the Croydon General Hospital, the Nelson Hospital at Raynes Park, and the aid-posts of the Red Cross Society at Kingston and Woking. At each centre there is in attendance an orthopædic specialist and nurses trained in massage, electrical treatment, and plaster work. Minor operations are carried out at the centres; major operations in one of the hospitals mentioned or a London hospital. For certain of the patients prolonged in-patient treatment is necessary, and 50 beds at the homes of the Waifs and Strays Society at Pyrford have been secured for the purpose. These homes are recognised by the Board of Education and are well equipped for the operative treatment and education of cripples. The county council pay 3s. per attendance at the centres for cases referred by their assistant medical officers and £104 a year for each occupied bed at Pyrford.

Dr. Cates refers to the complaints, which are made from time to time by the Surrey local sanitary authorities, as to the dumping of refuse by certain of the metropolitan borough councils, and is emphatic that the time has arrived when urban communities should destroy their refuse in a properly constructed destructor. During the present year a survey will be made of the methods adopted throughout the county for the disposal of refuse. A report on isolation hospital accommodation in the county indicates the need for some reorganisation. For example, the Frimley Urban District Council's hospital at Mytchett is quite unsuitable, and diphtheria cases from this district are already sent to the Farnham Hospital. Dr. Cates considers that the Frimley hospital should be closed and all cases of infectious disease sent to the Farnham or some other hospital. Again, at Redhill are the well-constructed hospital of Reigate borough and the antiquated, unsatisfactory hospital of Reigate district, whereas the former building would serve both areas. A third recommendation is that the Epsom Urban District Council should close their hospital and arrange for their patients to be admitted to the Joint Hospital at Cuddington. The report for 1922 contained a complete survey of the Hogsmill; that for 1923 a survey of the Wandle; and the present report contains a survey of the Beverley Brook. The condition of the Beverley Brook, says Dr. Cates, is not so serious as that of the River Wandle, but furnishes additional evidence that the county council needs supplementary powers to enable them to deal satisfactorily with the condition of the rivers in the county.

Wiltshire.

Dr. Claude E. Tangye reports an increase in the prevalence of encephalitis lethargica, there being 12 cases notified as against three in 1923. Four of the cases ended fatally and most of the survivors suffered damage to the nervous system. Five children of school age survived the disease with impaired mentality and a sixth with facial paralysis. Other cases of this disease have occurred which were not notified at the acute stage, but only diagnosed by the after-effects. The orthopædic clinics which have been started at Devizes, Trowbridge, Corsham, and Swindon in connexion with the Children's Orthopædic Hospital at Bath, have been of great value to the tuberculosis scheme. Dr. Tangye points out that the notification of tuberculosis is still incomplete and that about one-fifth of the deaths from tuberculosis in 1924 were unnotified cases. An arrangement has been made with Swindon whereby midwives notify all cases of discharging eyes, however slight, to the borough medical officer of health. Under this scheme 13 notifications were received by Dr. D. Brewer, the Swindon M.O.H., and the cases were subsequently treated at the borough child welfare clinic with most satisfactory results. The health visitors of the county council supervise boarded-out children for most, but not all, of the boards of guardians in the county. In consequence of the relatively high rate of maternal mortality in the county, the district medical officers of health were asked to furnish details of all deaths from complications of child-birth in return for a small fee. A number of such reports have been received, but it is too early to judge of their value. There are now six maternity and child welfare centres in the county. The centre at Trowbridge is the only one administered directly by the county council, the others being under voluntary committees. Antenatal work has been begun at the Trowbridge centre, and the employment of practitioners of special experience in this work is a question which is receiving careful consideration.

The report on the sewage works of the county shows that there is considerable pollution of the rivers by a large number of unsatisfactory effluents. Only one licence has been issued by the county council under the Milk Designations Order—namely, for Grade A milk. The shortage of houses in Wiltshire is still acute and very little is being done in the matter of the inspection and repair of insanitary houses. Dr. Tangye reports that the provision, by which the local sanitary authority can carry out repairing work in the default of the owner and charge the owner with the cost, is practically never used. It is surprising to learn that there are four rural districts which have no building by-laws. Of these, says, Dr. Tangye, "the Bradford-on-Avon Rural District is conspicuous for the activity of building operations quite uncontrolled by the local sanitary authority."

Northamptonshire.

Dr. Charles E. Paget notes the passing of the Thames Conservancy Act, 1924, as one of the important events of the year. By this Act the jurisdiction of the Thames conservators has been extended to six additional counties—viz., Northamptonshire, Warwickshire, Worcestershire, East and West Sussex, and Bedfordshire. The effect of the Act is to bring all sources of sewage pollution of the River Cherwell and its tributaries within the rural districts of Brackley, Daventry, and Middleton Cheney under the surveillance of the conservators. When the Bill came before Parliament there were three serious pollutions of the Cherwell. In respect of two of these action had already been taken, but the Brackley R.D. Council had refused to carry out a scheme for Kings-Sutton on the grounds of expense. Dr. Paget points out that the standard of purity required by the Thames Conservancy is much higher than that adopted by any authority enforcing the Rivers Pollution Act. Presumably the Brackley R.D. Council will have to come into line. Dr. Paget reports an increase in the prevalence of encephalitis lethargica. There were 19 notifications in 1924, as compared with 6 in 1923; 9 of the cases ended fatally; 7 of the 9 deaths occurred at or over the age of 45.

The inspection of dairy cows in the county during the year was interfered with by outbreaks of foot-and-mouth disease. To Dr. Paget's regret, veterinary inspection is not in operation in all parts of the county. There are two joint committees in the county for veterinary inspection and the results judged by success in finding cows with tuberculous udders are a curious contrast. Thus the veterinary inspector of the Kettering Joint Committee found six cases of tuberculous udders among 3808 cows, while the

veterinary inspector of the Wellingborough Joint Committee found 16 tuberculous udders among 2076 cows. The county analyst, Mr. E. W. Voelker, reports that nearly 10 per cent. of the 371 milk samples were adulterated, 26 being deficient in fat and 10 being watered. The proportion of butter samples containing boric acid preservatives was much less than in 1923. One reads with interest that two samples sold as "ginger brandy" were non-alcoholic syrups flavoured with ginger, while a beverage with the innocent name of "cowslip wine" contained 29 per cent. proof spirit.

Warwickshire.

Dr. A. Hamilton Wood reports a considerable amount of progress in the matter of prevention of river pollution. The activities of the Upper Tame Basin Joint Committee have stimulated the authorities whose effluents were polluting the Tame before it reached Warwickshire. The Birmingham Tame and Rea District Drainage Board have introduced many improvements including bio-aeration plants, and a great improvement is expected in the quality of the effluent of 30,000,000 gallons per day discharged into the Tame below Water Orton. The condition of the River Cole is also improved. Important reconstructions have been carried out at the sewage works of both Hinckley and Nuneaton, which will improve the condition of the River Anker. The Avon is still polluted by sewage from the city of Coventry, but it is expected that an improvement will shortly result from the installation of the bio-aeration plant which is now in progress at the city sewage works. The effluents from the Warwick sewage farms and the Leamington sewage works are still unsatisfactory.

The county analyst, Mr. Rigby, reports that the average composition of the milk samples analysed during the year showed 8·75 per cent. of non-fatty solids and 3·88 per cent. of fat. For the first and fourth quarters of the year the average was about 8·74 per cent. of non-fatty solids and 4·02 of fat. For the two middle quarters of the year the non-fatty solids averaged about 8·76 and the fat 3·73. The fat was thus 0·3 per cent. higher during the winter quarters. The record of the V.D. clinics shows an increase in new cases dealt with from 179 in 1923 to 264 in 1924. The patients who ceased to attend without completing treatment numbered 116, while only 40 were discharged after the completion of treatment. Dr. Wood, referring to the statement of the Ministry that no Exchequer grants are available towards the cost of the training of midwives, points out that local expenditure either from voluntary or rate-aided sources must be increased if the efficiency of the county midwifery service is to be maintained.

In view of the high maternal mortality from childbirth provision has been made for complicated midwifery cases at several hospitals and at the county maternity homes at Warwick and Rugby. The Warwick home admitted six antenatal cases and the Rugby home 12 antenatal cases during the year. Only 144 new cases attended the antenatal clinics, while the number of births in the county was 6722. Both of the county homes have been recognised by the Ministry as training institutions for midwives. There were 34 notifications of ophthalmia neonatorum with no cases of impaired vision. This result is attributed to the routine use of a colloidal silver preparation by the midwives introduced in 1919 and perfected in 1920. The following are the cases of blindness in infants from ophthalmia neonatorum during the last nine years:—

Year.	Notifications of ophthalmia.	Blindness.		Year.	Notifications of ophthalmia.	Blindness.	
		Both eyes.	One eye.			Both eyes.	One eye.
1916	66	1	1	1921	36	0	0
1917	60	2	0	1922	59	0	0
1918	46	1	1	1923	40	0	0
1919	52	1	1	1924	34	0	0
1920	56	0	1				

Leicestershire.

Dr. T. Robinson reports an effort towards the production of cleaner milk in the county. The county laboratory is to be extended and its staff increased in order to deal with milk samples sent by the district councils. Both the district councils and the vendors will be informed of the result of the examination. A clean milk competition was held during the year, for which 20 farmers entered. For the competition six samples were sent by the competitor and one surprise sample was taken. A steady improvement was noticed in the samples as the competition progressed. Of the 20 competitors eight produced Grade A milk in each of the seven specimens, while only one competitor failed to produce Grade A milk in any of the seven samples examined. The Ministry have issued four licences for Certified milk and one for Grade A (tuberculin tested), while the county council have issued Grade A licences to three producers. Small-pox was introduced into the county in December, 1923. There were 98 cases reported during 1924. The disease was of a mild type and caused no deaths.

Fife.

Dr. G. Pratt Yule, in referring to the fact that the Board of Health has issued an Order making infective jaundice compulsorily notifiable, states that this disease appears to be associated with a similar condition in rats and that it has occurred among miners in the county in the past, but would appear to have been limited to pits in the Lochgelly-Cowdenbeath area. During 1924 seven lupus patients were sent to Edinburgh to receive treatment at Sir Norman Walker's arc-light clinic at the infirmary. Dr. Yule and Dr. McGillivray (the tuberculosis officer) were much impressed with the results obtained at this clinic. They saw one case, who had been attending the infirmary for 40 years trying all kinds of treatment without benefit, and whose lupus was practically healed after four months of the light treatment. They recommended that a similar clinic be established at the county sanatorium at Glen Lomond. Dr. W. P. S. Johnson, the medical officer of the Dunfermline V.D. centre, reports that, as compared with 1923, there is an increase in the percentage of gonorrhœa cases and a decrease of syphilis cases. The percentage of cases which cease to attend before the completion of treatment was 13·3, which compares very favourably with the experiences of other centres. Dr. Johnson points out that the clinic in Market-street is unfortunately situated; for one thing, it is at a distance from the hospital where the in-patient treatment is carried out, but the principal objection is that the position is so exposed that prospective patients are deterred from attending. Housing conditions are still difficult, and the need is particularly urgent in the mining districts of Kirkcaldy and Dunfermline. No applications have been made for licences to sell graded milk.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED AUGUST 29TH, 1925.

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 37; scarlet fever, 1362; diphtheria, 787; enteric fever, 81; pneumonia, 449; puerperal fever, 41; cerebro-spinal fever, 6; acute poliomyelitis, 12; acute polio-encephalitis, 2; encephalitis lethargica, 34; continued fever, 1; dysentery, 8; ophthalmia neonatorum, 109. There were no cases of cholera, plague, or typhus notified during the week.

Deaths.—In the aggregate of great towns, including London, there was 1 death from enteric fever, 20 from measles, 5 from scarlet fever, 40 from whooping-cough, 12 from influenza, and 27 from diphtheria. There were 218 deaths of children under 2 years from diarrhœa and enteritis, as compared with 177, 136, 108, 101, and 64 in the preceding weeks. In London itself there were 10 deaths from diphtheria, 5 from whooping-cough, and 1 from influenza.

Correspondence.

"Audi alteram partem."

THE INDIAN MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—I was delighted this morning to read the leading article in THE LANCET on the Indian Medical Service. It was most refreshing after the orgy of pessimistic representations that have appeared in other papers. The article is, I believe, an accurate statement of the present position of the I.M.S., and taken with what appeared in the Students' Number last week should be very helpful to young medical men wishing to know the exact state of things.

I was very glad also to read your eulogy of Lord Sydenham's speech. The fundamental point is that the I.M.S. is not to be abrogated. I am inclined to think that once the home schools' embargo is raised there will be a rapidly increasing number of candidates for the I.M.S. There will be few home candidates for the 50 per cent. appointments of the civil or rather provincial medical services; the Lee Commission recommended that the shortage of these 50 per cent. was to be made up by additional transfers (apart from the War Reserve of 122) from the R.A.M.C. (India). If this is given effect to in the I.M.S., we shall go near to a restoration of the status quo ante. *Nous verrons!*

I am, Sir, yours faithfully,

Westward Ho! Devon, Sept. 4th, 1925. P. HEHIR.

*** If the recommendations of the Lee Commission are applied in their entirety to the Indian Medical Service it follows, as we set out in the Students' Number of THE LANCET, that no attempt will be made to perpetuate that Service as at present constituted. Happily, the Government of India and the Secretary of State for India are in agreement that the Indian Medical Service must be maintained. Lord Birkenhead has still to communicate his final decisions, but there is nothing in the existing situation to belie optimism.—ED. L.

ADENOIDS AMONG SCHOOL-CHILDREN.

To the Editor of THE LANCET.

SIR,—In reference to the annotation upon this subject in your issue of August 22nd (p. 391), it may be of interest to your readers to be reminded of an investigation into the occurrence of adenoids in three of the London County Council elementary schools, the results of which I published 15 years ago.[1] The investigation dealt with 2315 children and was made during the winter of 1907–08. Without going into details, which can be seen in the reference given, the conclusions to be drawn were as follows:—

1. That on the average about 37 per cent. of the children in elementary schools have adenoids, and between 72 and 76 per cent. have enlarged tonsils as well.
2. That on the average 31·2 per cent. of adenoid cases are mouth-breathers, complete or partial, and that hypertrophy of the faucial tonsils may give rise to mouth-breathing in the absence of adenoids.
3. That sex appears to have no influence upon the incidence of adenoids.
4. That adenoids are most common about the age of 8 and are next most frequent at about 12.
5. That true aprosexia is often confused with apparent dullness due to defective hearing, and that true aprosexia occurs only in about 4·7 per cent. of adenoid cases, is more frequent in girls, and, when present, is associated with a marked degree of adenoids.
6. The so-called adenoid facies is uncommon, save in association with a marked degree of adenoids.
7. That the association of an abnormally high palate with adenoids is rather due to peculiarities of cranial formation than to extra-uterine influences of nasal stenosis, and that, if there is any relation between a high narrow palate and adenoids, it is possible that the palate shape is rather the cause of the adenoids than vice versa.
8. That the presence of adenoids has more to do with the presence of carious teeth than have mouth-breathing and palate shape, and that this is probably due to the increased tendency to oral sepsis in adenoid children.
9. That irregularity of the upper incisors is less a result of adenoids than of palate shape.
10. That the percentage of ear complications in adenoid children is about 10·8, and that adenoids are probably by far the most important factor in the ætiology of ear affections in childhood.

[1] British Journal of Children's Diseases, February and March, 1910.

There is no need to compare my conclusions with those of Dr. Newsholme, but I cannot agree with his estimate that 5 per cent. only of the school-children would be suffering from symptoms calling for operation, presuming, of course, that the children referred to are the 600 out of 18,000. I am much more in agreement with my friend Dr. Dan McKenzie, that the percentage requiring operation is 30.

There is one thing that must be said in conclusion, for it has come repeatedly before me in my work as an officer of the L.C.C., and my experience has been endorsed by other otologists to whom I have spoken on the subject. It is that a large percentage of adenoid operations are inefficiently performed. Not a month passes without my being told by mothers that a child's deafness has been made worse by, or dated from, an adenoid operation. It is not the special hospitals that this complaint involves, but the large general hospitals and general practitioners in poor neighbourhoods. Even when the operation has been efficiently performed it would appear that in many instances the child is expected to recover hearing by itself, and no trouble is taken to follow cases up and to ensure that proper aural after-treatment is obtained.

Finally, the more I see of the treatment of adenoids and tonsils, the more I am convinced that the operation should be regarded as one of the highest importance and not as one so trivial that "anyone" can perform it.

I am, Sir, yours faithfully,

MACLEOD YEARSLEY, F.R.C.S.,
Consulting Aural Surgeon to the London County Council, &c.

Wimpole-street, W., Sept. 4th, 1925.

RADIATION FOR CARCINOMA:

MR. BONNEY'S CHALLENGE.

To the Editor of THE LANCET.

SIR,—I perceive from your report of the proceedings of the Section of Gynæcology at the B.M.A. annual meeting that Mr. Victor Bonney has been at it again. The mere mention of the word "radiation" appears to make him see red. Speaking of cases of carcinoma of the uterus with carcinomatous glands, Mr. Bonney said (THE LANCET, Sept. 5th, p. 498):—

"He did not use radium beforehand as a routine, though he had operated on a good many cases in which it had been so used with the idea of making the growth removable. Those who said it could do this did not know the limits of operability. It did nothing of the sort, but on the contrary made the operation much more formidable on account of the intense fibrosis set up, which so welded the surrounding tissues to the growth that all planes of cleavage were lost."

If Mr. Bonney goes on at this rate (and he *does* go on, as his later remarks will show) his name will become a bogy with which to frighten young radiologists at their mother's knee! I am not specially concerned to take up the cudgels for radium as a preoperative treatment, as I think it is less easily controlled than X rays, and may, unless very skilfully handled, cause actual tissue necrosis, with resultant extensive scarring. But Mr. Bonney does not confine his hostility to radium. He goes forth with bell, book, and candle, reciting a kind of Athanasian Creed which includes radium, X rays, and their advocates in one comprehensive damnation.

Now, if there is one thing firmly established in radiotherapy, it is that X rays in suitable doses have the power to cause the absorption of pathological fibrous tissue. Keloid melts away under their influence, and the tense bands of a Dupuytren's contraction become softened. The X ray, it is true,

does not distinguish between fibrous tissue which is the result of disease, and adhesions which have been deliberately provoked by the surgeon. In a case published some years ago an intensive dose of X rays was given to a patient in whom a ventrofixation of the uterus had been successfully performed 12 months previously. Within a few weeks of the irradiation the adhesions to the abdominal wall gave way, and the original prolapse recurred. This case was quoted by a surgeon to illustrate the dangers of X ray therapy; in reality it was an excellent proof of the power of X rays to dissolve fibrous tissue. That this particular result was not the one aimed at does not in any way invalidate the demonstration. I am frequently called on by my surgical colleagues to attempt to render an inoperable case operable, and in many instances I am able to cause a fixed growth to become movable. This is a statement which it is quite obvious that no responsible medical man would make unless he were prepared, if necessary, to produce independent surgical testimony as to its truth.

To quote Mr. Bonney further (p. 499):—

"His experience of this treatment (deep X rays) both for primary and secondary growths was most disappointing... No one was more anxious than himself to find a better method of treating carcinoma of the cervix than operation, but there was no sense in the advocates of radiation carping at the results of surgery until they had produced a series of figures comparable with those he had just put before them.... What was needed was the publication of a British series of not less than 100 cases treated by radiation, in all of which at least five years had elapsed between the date of cessation of all treatment and the date of publication."

The idea of the British radiologist carping at the results of surgery makes one smile. If he has erred in the past it is by excessive deference to surgical views. *Damnat quod non intelligit* is not a fault which can be laid at his door. But Mr. Bonney issues a direct challenge. It is, however, one that he must know he is quite safe in making. To carry out such a test it would be necessary to secure 100 cases of pelvic cancer not of the moribund type, which the British radiologist usually sees, but similar to an average 100 of the cases which are now operated on. At present the sequence of events is this: The practitioner sends the patient to a gynæcological surgeon, who invariably recommends operation when this is technically possible. The radiologist sees only (1) the inoperable cases, (2) recurrences, and (3) a few patients who refuse operation. It is only from these latter that statistics such as Mr. Bonney asks for could be compiled, and I doubt if there are many radiologists who see 20 such cases in a life-time of practice. Is Mr. Bonney—is any gynæcological surgeon—prepared in his hospital practice to set aside 50 per cent. of all operable cases for five years or more in order to put the matter to proof? I think not. But unless those who control the cases are prepared to follow some such plan it is idle to taunt the British radiologist with the failure to produce statistics.

I express no opinion as to what the probable result of such a test would be. Personally, I have always advocated combination in treatment. My object has been to show that Mr. Bonney has issued a challenge which, through no fault of the radiologist, cannot be accepted.—I am, Sir, yours faithfully,

Harley-street, W., Sept. 5th. F. HERNAMAN-JOHNSON.

LONDON MEDICAL GRADUATES AND CONVOCATION.

To the Editor of THE LANCET.

SIR,—May I point out to all M.B.'s of London the significance of the amendment of Statute 41, Clause (ii), which was ratified by the King in Council in May last, and is now in force, which entitles every M.B. to be registered as a member of Convocation (and, subject to the Representation of the Peoples Act, 1918, places him on the Parliamentary roll for the University vote) immediately he or she graduates, provided the age of 21 years has been attained. Hitherto every graduate was compelled to wait three years from graduation, which produced the striking anomaly that, whereas graduates in other faculties (divinity, arts, law, music, science, in which graduation can be attained after a three years' course) might enter Convocation six years from matriculation, graduates in the medical faculty were compelled to wait eight and a half to nine years.

I pointed this out in the *Times* of Oct. 23rd last, and at the same time memorialised the faculty representatives and the present Member of Parliament for the University. They agreed that the existing anomaly called for removal, and accordingly a motion was framed, and put by Mr. Eason at the meeting of the Faculty of Medicine on Oct. 29th last, which called the attention of Convocation to this anomaly, and recommended the amendment of Statute 41, para. (ii) by the abolition of the probationary period of three years. This was carried unanimously, and was sent on to Convocation. Independently of this action Dr. James Mould, at the request of the Twentieth Century Society of London Graduates, placed a notice of motion on the agenda paper of the meeting of Convocation held on Jan. 16th, 1925. Convocation resolved in accordance with the terms of Dr. Mould's motion which was then forwarded to the Senate, and, as stated above, was finally approved by His Majesty in Council in May.

The link between the University and her graduates needs strengthening by every possible means, and now that our Alma Mater stretches out her hands in welcome, it behoves every M.B. to become a member of Convocation as soon as possible, and thus to take an active interest in the government of the University.

I am, Sir, yours faithfully,

CHARLES A. H. FRANKLIN, M.D. Laus., M.B., B.S. Lond.

Bickley, Kent, Sept. 7th, 1925.

SILICATE IN A HARROGATE WATER.

To the Editor of THE LANCET.

SIR,—Valuable therapeutic uses are attributed to silicate by Prof. F. Luithlen in the article annotated in your issue of August 22nd (p. 392). Luithlen there points out the importance of a proper balance between calcium and silicon in healthy tissue. A deficiency of silicate is said to result in decreased elasticity and certain senile conditions. Any natural medicinal source, therefore, containing silicate presents points of interest hitherto rather neglected, although Weber and Weber ("Climatotherapy and Balneotherapy," p. 341) refer to the therapeutic influences of this compound.

In the Harrogate John's Well we have a water which appears particularly suitable for the administration of silicate. Only in very rare cases does the silicate content of a natural water approach the calcium in amount, and a brief search discloses no instance in which the ratio Si/Ca is so high as in the John's Well. Results of analysis of John's water, expressed in terms of parts weight of ions per 100,000:

Specific gravity 15°/15° C.	1·00019	Calcium	1·83
Total solid matter	19·00	Iron	0·98
Sodium	1·04	Manganese	0·022
Potassium	0·20	Chloride	1·80
Ammonium	0·009	Silicate	3·54
Lithium	trace	Sulphate	0·86
Magnesium	0·87	Carbonate	14·2

The water is palatable and assimilable. It is hypotonic, having an osmotic pressure of about 130 mm. of mercury. Usually it is prescribed for its iron content, which is small, but as Bain and Edgecombe say of this spring ("Harrogate Waters, Baths, and Climate," p. 66): "There are certain patients so peculiarly susceptible to the influence of iron that, unless weak solutions easily assimilated are prescribed, the remedy has to be abandoned." The ration of silicate to calcium is 1·93.

I am, Sir, yours faithfully,

A. WOODMANSEY, M.Sc., Analyst, Royal Baths, Harrogate.

Sept. 4th, 1925.

MISQUOTATION.

To the Editor of THE LANCET.

SIR,—In the *Vaccination Inquirer*, the organ of the National Anti-Vaccination League, dated Sept. 1st, a statement has been made to the effect that at a meeting of the Natural History Society in Eastbourne I stated: "I would rather sleep with a case of small-pox than a case of influenza," and for having stated this I am alluded to as "Eastbourne's sensible M.O.H." It will interest your readers to know that this statement is a *part* of a sentence which was completed to this effect: "Because I have been vaccinated against small-pox and keep myself re-vaccinated from time to time."

The *Vaccination Inquirer* is, I understand, circulated to medical men, and the passage might very well give the impression that I did not believe in vaccination. The facts are that I was giving an address on vaccination and similar matters at the meeting of the Natural History Society, and was taking the opportunity of rubbing in the importance and advisability of vaccination and re-vaccination, explaining carefully the reasons for my doing so.

It is interesting to know that anti-vaccinators can take a part of such a statement as I made and twist it so that it would appear that my opinion is diametrically opposite to that which I stated in full at the meeting. The statement in the *Vaccination Inquirer* may not be a matter altogether of bad faith on the part of the writer in that paper, for his information was got from a local paper in which a contributor, who is a prominent anti-vaccinator, made the original statement.

I am, Sir, yours faithfully,

W. G. WILLOUGHBY,

Sept. 8th, 1925. Medical Officer of Health, Eastbourne.

*** We have received from the President of the National Anti-Vaccination League a pamphlet on the vaccination question, asking for assistance on the ground of "the power of the press in all matters." The power of the press is sadly minimised when misquotations of the sort complained of by Dr. Willoughby occur. Dr. Willoughby suggests that the editor of the *Vaccination Inquirer* was misled, but the error should be rectified now.—ED. L.

RHEUMATIC INFECTION IN CHILDHOOD.

To the Editor of THE LANCET.

SIR,—The leading article in your issue of August 15th (p. 341) seems to endorse the view of Dr. Robert Hutchison and others that rheumatic infection is not a poverty disease. But the figures given in the discussion do not appear to me to warrant their deduction. In 48 per cent. the wages, it is stated, do not exceed 7*s.* per head, or, say, for a family of eight a total of £2 16*s.* per week. Why, to house a family of eight decently the rent would be at least 16*s.*, whilst clothes, boots, &c., would amount to another 2*s.* per head or 16*s.* for all, to say nothing of paying into a club, saving for a rainy day, tobacco, entertainments, &c., so that there remains but 24*s.* to feed a family of eight for the whole week, and yet Drs. Coates and Thomas think this not poverty. How much milk at 10*d.* per quart is likely to be bought for such a household? Would any eggs at 4*d.* each ever be consumed by a single child? Yet such important lime-bearing foods as milk and eggs are essential for the good health of children.

In my investigations, which I have carried out with Dr. Tighe and which comprise more than 44 children, it was found that nearly all the post-rheumatic or post-choreic heart cases occurred in those who took neither milk nor eggs. I divide children into two classes—viz., milk-drinkers and non-milk drinkers. Of this latter class there are those who aggravate their poor intake of lime-bearing food by partaking largely of vinegar, sauces, and sour things generally, thereby helping still further to deplete the system of lime: this subclass I call the "acid class," from which in my experience all the cases of rheumatic fever and chorea arise.

The inadequate intake of lime and its aggravation by the consumption of acid and sour things constitute a predisposition which, in my opinion, requires but a protein sensitisation such as occurs when children are bitten by harvest bugs, midges, fleas, sand fleas, and the like, to give rise either to rheumatic fever or chorea.

I am, Sir, yours faithfully,

G. ARBOUR STEPHENS,

Consulting Cardiologist, Welsh National
Swansea, Sept. 6th, 1925. Memorial Association.

MOSQUITO CONTROL IN ENGLAND.

To the Editor of THE LANCET.

SIR,—Referring to the account, given in your issue of Sept. 5th (p. 526), of the formal opening at Hayling Island of the well-equipped building provided by Mr. John F. Marshall to house the recently constituted British Mosquito Control Institute, it is curious that although during the past 28 years enormous advance has been made in the control of mosquito-borne disease, and that British scientists, notably Sir Ronald Ross, have taken a leading part in this work, yet, with the exception of the now well-known investigations of Mr. Marshall, the subject of mosquito control in this country has been almost entirely neglected.

In the absence of endemic malaria the mosquito problem has not been such a vital question in this country as in many other places; at the same time, even in this country, there are numerous districts in which the residents suffer severely from the bites of these insects, and fatal results are by no means unknown. Apart, however, from serious injury to health, the nuisance and irritation caused by these insects become at times almost unbearable. The success which has attended the efforts of Mr. Marshall in Hayling Island is likely to lead to a demand for the adoption of measures for mosquito control in many other places, and to any of my fellow medical officers of health, upon whom may devolve the duty of dealing with the mosquito nuisance, I would suggest that an application to Mr. Marshall and his colleagues at the British Mosquito Control Institute would secure advice and assistance which would materially promote the success of their efforts in this direction. I can testify from personal experience both to the scientific and thoroughly practical character of the work which has been carried out at Hayling Island, and to the courteous and ready response to applicants for advice.

I am, Sir, yours faithfully,

A. MEARNS FRASER, M.D.,

Sept. 8th, 1925. Medical Officer of Health, Portsmouth.

MEDICINE IN RUSSIA.—About six million cases of malaria have been recorded throughout the Union of Socialist Soviet Republics in 1924. As a certain number of cases remain unrecorded this figure is a minimum. The death-rate did not exceed 5–6 per cent. of the total number of victims, even in the Caucasus and Astrakhan regions where malaria is most prevalent. The People's Commissariat for Health, and its provincial branches, carry on an anti-malaria campaign, having at their disposal 163 equipped malaria stations, six tropical institutes for scientific study, and a number of clinics served by a special staff. 75,000 kilogrammes of quinine have been imported to U.S.S.R. during this year, and 6000 kilogrammes have been distributed, free, to the population. In addition to this amount the "Zusstrah" (Central Organisation for the Social Insurance of Workers) has purchased abroad and distributed among the workers about 2000 kilogrammes of quinine.—To locate the leprosy centres in Siberia is the object of a scientific expedition which is leaving Irkutsk under the leadership of Dr. Perevodchikov. In his opinion one of such centres must exist east of the Baikal Lake: there are also indications that one lies in the region of Barbousin, in the Buriat Republic.

Medical News.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—An intensive course in General Medicine, Surgery, and the Special Departments will be given at the Westminster Hospital from Sept. 21st for two weeks. The Brompton Hospital will start a fortnight's course in Diseases of the Chest on Sept. 21st. Full particulars and syllabuses of the courses, together with the Fellowship programme, may be obtained from the Secretary, 1, Wimpole-street, London, W. 1.

OPENING OF THE MEDICAL SCHOOLS.—The following functions will be held in connexion with the opening of the undermentioned London medical schools:—

St. Bartholomew's Hospital.—Old students' annual dinner, Thursday, Oct. 1st, in the Great Hall of the hospital. Chairman: Mr. J. Adams.

St. Mary's Hospital.—Past and present students' annual dinner, Monday, Oct. 5th, at the Connaught Rooms, Great Queen-street. Chairman: Mr. Leslie Paton.

Middlesex Hospital.—In the Queen's Hall, Thursday, Oct. 1st, at 3 P.M., prize distribution by the Hon. Sir Arthur Lawless; inaugural address by Dr. C. E. Lakin on Tradition in Medicine. Annual dinner, Thursday, Oct. 1st, at the New Criterion Restaurant, Regent-street. Chairman: Sir Arnold Lawson.

Westminster Hospital.—Inaugural address by Prof. A. E. Gardner, Thursday, Oct. 1st, at 3 P.M., in the board room of the hospital. After the address Prof. Gardner will unveil in the hospital laboratories a tablet commemorating the generous endowment of pathological research work by Mr. A. J. H. Carlill.

ROYAL DENTAL HOSPITAL OF LONDON.—The distribution of prizes to the school of dental surgery will be made by Sir John Bland-Sutton at the hospital on Monday, Oct. 5th, at 4 P.M.

UNIVERSITY OF LONDON.—Applications for the Julius Mickle Fellowship must be made before Oct. 1st. The Fellowship, which is of the value of at least £200, is awarded by the Senate to the man or woman who, being resident in London and a graduate of the University, has, in the opinion of the Senate, done most to advance medical art or science during the preceding five years.

UNIVERSITY OF DURHAM.—Post-graduate instruction will be held in clinical medicine, clinical surgery, and pathology on each Thursday from Oct. 1st to Dec. 10th, and courses in various special subjects will also be held weekly. A detailed syllabus may be obtained from Prof. R. Howden, College of Medicine, Newcastle-upon-Tyne.

UNIVERSITY OF PARIS: *Pathological Anatomy.*—An advanced course on this subject will commence on Monday, Oct. 5th, under the direction of Prof. G. Roussy, assisted by many distinguished collaborators from Paris and other medical centres of France. The course is open to French and foreign doctors and students and the fee is Fr.150. Full particulars and the syllabus may be obtained from Dr. Leroux, 21, Rue de l'École de Médecine, Paris.

INTERNATIONAL CONGRESS OF HYDROLOGY AND MEDICAL CLIMATOLOGY.—The eleventh congress of this series will be held in Brussels from Oct. 11th to the 13th, under the presidency of Dr. Modeste Terwagne. Full particulars may be obtained from the general secretary, Dr. René Beckers, 36, Rue Archimède, Brussels.

CARDIOLOGY.—A special two weeks' course in cardiology will be held at the National Hospital for Diseases of the Heart, Westmoreland-street, Marylebone, W. 1, from Oct. 5th to 16th. The course includes lectures, demonstrations, clinical and pathological. As the course will be limited to 16 participants, early application should be made to the Dean, Dr. B. T. Parsons-Smith, from whom copies of the syllabus may be obtained.

RONTGEN SOCIETY.—The following are the officers and members of council for the session, 1925–26:—President: Dr. F. W. Aston, D.Sc., F.R.S. Vice-Presidents: Dr. Robert Knox, Dr. N. S. Finzi, Prof. A. W. Porter, D.Sc., F.R.S. Hon. Treasurer: Mr. Geoffrey Pearce. Hon. Editor: Dr. G. W. C. Kaye, D.Sc. Hon. Secretaries: Dr. E. A. Owen, D.Sc., Dr. Russell J. Reynolds. Council: Dr. G. B. Batten, Dr. H. A. Colwell, Prof. J. A. Crowther, D.Sc., Dr. E. P. Cumberbatch, Mr. A. K. Glover, Dr. J. E. A. Lynham, Dr. J. M. Woodburn Morison, Dr. G. H. Orton, Mr. C. E. S. Phillips, Prof. S. Russ, D.Sc., Mr. W. E. Schall, Dr. G. Shearer, D.Sc.

ROYAL PHOTOGRAPHIC SOCIETY.—The annual exhibition will be held at the house of the society, 35, Russell-square, London, W.C. 1, from Sept. 14th to Oct. 24th. Admission is free.

METROPOLITAN EAR, NOSE AND THROAT HOSPITAL.—The eighty-sixth annual report of this institution records (in tabular form) a successful year of work. Over 3000 out-patients and nearly 600 in-patients have been received and treated for conditions ranging from wax in the ear to lupus of the fauces, and from globus hystericus to ethmoidal sarcoma. Two special evening clinics for pensioners are still being held, and nearly 200 ex-soldiers have been treated. The average total cost of each in-patient is now £3 per week, a decrease of £1 4*s.* 9*d.* on 1923.

THE LATE DR. B. W. DAKERS, OF KENYA.—Bernard William Dakers, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., died at Kisumu, Kenya Colony, on July 16th. Dr. Dakers qualified in 1906 and entered the Kenya Civil Service in June, 1920. He was the first medical officer to be stationed in South Kavirondo. He was employed throughout in native reserves. There he won, by his sympathy and tact, the confidence of the local native population, and was very largely instrumental in popularising European methods of treatment.

NEW BETHLEM HOSPITAL.—It is stated in the annual report of Bethlem Hospital that the Monks Orchard estate, to which the institution is to be removed, cost a little under £36,000. The average weekly cost of the patients was £5 1*s.* 7*d.* The scarcity of female nurses (in the words of the report) "still causes much anxiety." One half of the patients pay amounts ranging up to £3 3*s.* per week.

BELGRAVE HOSPITAL FOR CHILDREN: PAYING PATIENTS.—Early next year a ward is to be opened for the admission of patients whose parents can afford to pay the cost of maintenance (about £3 per week) and a small fee to the physician or surgeon in attendance. This cannot be done until the new west wing, now being built, is finished. This wing will afford sufficient accommodation for the nursing staff, which is now inconveniently housed in three different buildings.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL: MIDWIFERY TRAINING.—The annual report of this hospital shows that out of 123 pupil midwives who sat for the C.M.B. examination only four failed. Henceforward the period of training will be 12 months instead of six, save in the case of pupils who hold a certificate of three years' training in general nursing, in which case the period will be six months instead of four as hitherto.

A FOUNDER OF HOSPITALS.—Canon J. O. Stephens, who died last week at the age of 93, while holding the benefice of Savernake in 1866 founded and endowed Savernake Cottage Hospital, Marlborough, which provides medical and surgical help for 54 rural parishes in Wiltshire and Berkshire. When, in 1879, he left Savernake to become rector of Blankney in Lincolnshire, he was the prime mover in the foundation of the Alexandra Hospital at Woodhall Spa.

A RECOVERY HOSPITAL FOR HUDDERSFIELD.—The board of management of Huddersfield Royal Infirmary have purchased for £10,000 the Green Lea estate, Lindley, with the intention of creating a recovery hospital. It is proposed that, for the present, surgical cases shall be removed thither for recovery, but that eventually the existing infirmary itself shall be used as an out-patient and casualty hospital, in-patients being treated at Lindley, which is 700 feet above the sea. The Green Lea estate is between 13 and 14 acres in extent.

LEEDS PENSIONS HOSPITAL.—Rapid progress is being made with the new Military Hospital at Gledhow, Leeds, which, when completed, will be a centre for ex-Service men from the north of England. It will accommodate between 200 and 300 patients and 80 nurses, and will cost £160,000. The buildings will include a cinema hall.

THE LATE DR. W. B. LIVERMORE.—William Barclay Livermore, M.D. Aberd., of Exeter, died on August 24th in a Plymouth nursing home of cerebral hæmorrhage at the age of 62. Born in Aberdeenshire, he was educated in Elgin and at the Aberdeen Gymnasium. He received his medical training at Aberdeen University and at Westminster Hospital, graduating M.B., C.M. Aberd. in 1883. After some experience in private practice at Cleckheaton, Yorkshire, he took up the study of tuberculosis and was appointed medical superintendent to the Devon and Cornwall Sanatorium for Consumptives, Didworthy, South Devon. Under Dr. Livermore's administration, which extended over 15 years, this institution increased in capacity from 20 beds to 76. On his retirement he was appointed to the consultant staff.

ST. BARTHOLOMEW'S HOSPITAL WAR MEMORIAL.—The archway beneath the north wing of the hospital is to be utilised for the erection of a war memorial to St. Bartholomew's men.

ROTHERHAM HOSPITAL.—On Sept. 7th Princess Mary opened a much-needed extension of Rotherham Hospital, which was last enlarged nearly 30 years ago. The additions have cost £20,000, practically the whole of which has already been subscribed.

PRESENTATION TO A MEDICAL MAN.—Dr. W. J. L. Ffrench, of Barnetby, Lincs, who has been identified very prominently with the public life of the district for 30 years, was recently presented with a silver salver and a cheque for £207.

THE Hastings Town Council has decided to acquire the lease of the White Rock Bathing Establishment, now leased by the corporation to a private organisation which is ready to surrender the balance of its term. If the council carries out its design, it should take over the baths as from Sept. 30th, when it will be necessary to spend a large sum to bring the establishment up to high standard, and this policy is to be followed.

THE PRINCE IN ARGENTINA.—H.R.H. the Prince of Wales recently visited the "Oxo" supply ranches in Argentina. Some 15 or 16 years ago a special commissioner of THE LANCET was sent to Argentina to investigate the circumstances in which the "Oxo" products were prepared, and his long and interesting report will as well repay study to-day as then. (Vide THE LANCET, 1908, ii., 1233.)

THE "PAUPER TAINT."—Mr. Richard Turley's seat on the Leeds board of guardians has been declared vacant because he has become an in-patient of the Poor-law infirmary. Mr. Turley was taken thither in a semi-conscious condition because there was no bed available at Leeds General Infirmary. He is a paying patient, yet under the Local Government Act of 1894 he has not only lost his seat but is disqualified for re-election for 12 months.

KEIGHLEY'S CHILD CONVALESCENTS.—Sir Prince and Lady Prince-Smith have provided and opened the Southburn Children's Home in the Yorkshire wolds near Driffield for child convalescents from Keighley. The former residence of Sir Prince-Smith's land agent has been adapted for the purpose, and the inmates are to be "children of deserving parents who cannot afford to pay for convalescent treatment," who will be taken either from Keighley Hospital or upon a doctor's recommendation.

THE LATE DR. J. MURDOCH BROWN.—James Murdoch Brown, M.D., F.R.C.P. Edin., died at his residence in Edinburgh on Sept. 3rd. Although he had been retired from active practice for many years, he was at one time one of the best known practitioners of the city. He graduated M.B., C.M. at Edinburgh University in 1874 with first-class honours and was Ettles Scholar of his year, and in 1878 became a Member of the Royal College of Physicians of Edinburgh, obtaining the Fellowship two years later. He gained the M.D. Edin. in 1897. Dr. Brown for many years held the office of justice of the peace for the county of Edinburgh.

DONATIONS AND BEQUESTS.—Sir William Northrup McMillan, of St. Louis, Missouri, U.S.A., and of Kenya Colony, left among other bequests $250,000 to the Scott Sanatorium, Nairobi, British East Africa, as an endowment.—Mr. Richard Fenwick, Edgbaston, Birmingham, left £6000 to the University of Birmingham for a scholarship or scholarships upon such terms and conditions as the governors in their discretion should think fit, and £200 each to the Birmingham Maternity Hospital and the Birmingham Royal Institution for the Blind.

Appointments.

CAPON, NORMAN BRANDON, M.D. Liverp., has been appointed Hon. Physician to the Royal Southern Hospital, Liverpool.

Vacancies.

For further information refer to the advertisement columns.

Birmingham General Hospital.—Asst. S. £50.
Blackburn County Borough.—Asst. M.O.H. £600.
Bradford Municipal General Hospital, St. Luke's.—H.P.'s and H.S.'s. Each at rate of £200.
Brighton County Borough Sanatorium.—Res. M.O. £350.
Brighton, New Sussex Hospital for Women and Children.—Hon. Radiologist.
Central London Ophthalmic Hospital, Judd-street, St. Pancras, W.C.—H.S. £100. Also Jun. H.S. £50.
Chester Royal Infirmary.—Hon. Asst. S.
Colwyn Bay and Colwyn Urban District Council.—M.O.H., &c. £750.
Denbigh County Council.—Asst. M.O. £600.
Dreadnought Hospital, Greenwich.—H.P. and H.S. Each at rate of £100.
Durham County Council.—Asst. Sch. M.O. £600.
Evelina Hospital for Children, Southwark, S.E.—H.P. at rate of £120.
Exeter, Royal Devon and Exeter Hospital.—H.P. and Asst. H.S. Each at rate of £150.
Glasgow Royal Infirmary.—Supt. £800.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Asst. P.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S., H.P., and Asst. Cas. O. Each at rate of £50.
Hospital for Tropical Diseases, Endsleigh Gardens, N.W.—H.P. At rate of £110.
Lambeth Parish Hospital, Brook-street, Kennington, S.E.—Jun. Asst. M.O. £200.
Lister Institute of Preventive Medicine, Chelsea Bridge-road, S.W.—Jenner Memorial Research Studentship. £250.
London Hospital, E.—First Asst. and Referee to one of the Five Surgical Firms. £400.
Macclesfield, Cheshire County Mental Hospital, Parkside.—A.M.O. £350.
Manchester and District Radium Institution.—Asst. Radiologist. £500.
Manchester Royal Infirmary.—Res. Clin. Pathologist. £50 for six months.
Manchester, St. Mary's Hospitals.—Three H.S.'s. Each at rate of £50.
Manchester University.—Asst. Lecturer in Chemical Pathology. £400.
Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W.—Anæsthetist.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Hon. Asst. S.
Nottingham Children's Hospital.—Res. H.P. and Res. H.S. Each at rate of £150.
Pharmacological Laboratories of the Pharmaceutical Society of Great Britain.—Director. £1200.
Prince of Wales's General Hospital, Tottenham, N.—H.S., Spec. H.S., and H.P. Each at rate of £150. Also Jun. H.S. and Jun. H.P. At rate of £110.
Radium Institute, 16, Riding House-street.—Cancer Research Worker. £500.
St. Pancras Hospital, &c.—Sen. Asst. Med. Supt. £400.
Singapore, Straits Settlements.—Two Asst. Health Officers. $7200.
South London Hospital for Women, South Side, Clapham Common, S.W.—H.P., three H.S.'s. Each at rate of £50. Clin. Asst. £1 1s. per attendance. S. to Ear, Nose, and Throat Department.
West London Hospital, Hammersmith-road, W.—H.P. and Two H.S.'s. Each at rate of £100.
Whipps Cross Hospital, Leytonstone.—Specialist Consultant in Light Treatment. £300. Res. Asst. M.O. £350.

The Chief Inspector of Factories, Home Office, London, S.W., announces vacant appointments for Certifying Factory Surgeons at Purfleet, Essex, and Ramsgate, Kent.

Births, Marriages, and Deaths.

BIRTHS.

GREEN.—On Sept. 1st, at Chippenham House, Monmouth, the wife of J. G. Green, M.B., B.Ch., B.A.O. N.U.I., F.R.C.S.I., of a daughter.

MARRIAGES.

CURRY—REA.—On Sept. 5th, at St. Clement Danes Church, Strand, Henry Donald, eldest son of the late H. G. Curry and Mrs. Curry, of Stradella-road, Herne Hill, to Helen Gladys Rea, L.R.C.P.I. and L.M., L.R.C.S.I., younger daughter of J. C. Rea, of Howth, Co. Dublin.

HUME—POOLE.—On Sept. 3rd, at Westcliff-on-Sea, John Basil Hume, M.B., F.R.C.S., to Marjorie Constance, daughter of Mr. and Mrs. Fredk. Poole, of Westcliff.

DEATHS.

BATTY.—On Sept. 1st, at Broadoak Cottage, Newnham, Brig.-Surgeon Richard Hamilton, I.M.S. (retired), L.R.C.S.I., L.S.A., aged 84.

BROWN.—On Sept. 3rd, at Strathearn-road, Edinburgh, James Murdoch Brown, J.P., M.D., F.R.C.P. Edin., aged 77 years.

CHURCHWARD.—On Sept. 4th, suddenly, at Selhurst-road, South Norwood, Albert Churchward, M.D. Brux., M.R.C.S. Eng., M.R.C.P. Edin., L.S.A.

ESKRIGGE.—On August 31st, Richard Bertram Eskrigge, L.R.C.P. Edin., and L.M., M.R.C.S. Eng., Royston, Barnsley, Yorks, aged 62.

LOVE.—On Sept. 6th, at Downpatrick, Ireland, Gilbert Love, M.D., B.Ch., B.A.O.R.U.I., of Great Budworth, Cheshire, the result of an accident.

ORR.—On Sept. 2nd, at Templepatrick, Co. Antrim, James Orr, L.R.C.P. & S. Edin., M.O. and M.O.H. Templepatrick Dispensary District.

RENTOUL.—On Sept. 3rd, at Hartington-road, Liverpool, Robert Reid Rentoul, M.D. R.U.I., L.R.C.P. & S. Edin., M.R.C.S. Eng., aged 70.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

NATIONAL INSTITUTE FOR THE BLIND.

THE report of the executive council of this institution for the year ended March, 1925, is a gratifying record of the way in which the care of the blind has regained the support of the general public. After passing through lean years, the Institute is now in a position to extend its activities in the wider fields of former years; during the period under review, a third "Sunshine House" (Blind Babies Home) has been opened at Leamington Spa, Warwickshire, a convalescent and holiday home has been established at St. Leonards-on-Sea, Sussex, the publication of Braille literature has been considerably increased, and the price of Braille books and periodicals reduced. Among the many training departments of the Institute the school of massage is one which offers particularly good opportunities, for massage is pre-eminently a profession in which the blind can compete with the sighted. This school is recognised by the Board of Education. The special training given to blind students in medical electricity is in charge of Dr. Murray Lævick, and a blind masseur who has specialised in the subject has been appointed on the staff to give instruction in the theory of electricity and the construction of batteries. The total number of blind civilian masseurs and masseuses on the register of the massage department is 100, and great care is given to the settlement of pupils after qualifying. During the past term Sir Jenner Verrall delivered a special course of lectures to blind students on modern orthopædics. The report, which incorporates the annual reports of the Clifton Home for Blind Women, the Home Teaching Society for the Blind, and the Moon Society makes stimulating reading, and concludes with an invitation to all interested to visit the headquarters of the Institute at 224-26-28, Great Portland-street, London, W. 1.

THE WEB OF LIFE.

THE first fortnightly part has just appeared of a new serial by Prof. J. Arthur Thomson entitled "A New Natural History: Nature's Wonder-land." Justifying his ambitious title Prof. Thomson points out how the study of living creatures is undergoing a subtle change and how our knowledge must be readjusted to meet this change. His own attitude towards animal life has brought him to think of animals not only as threads in a wavering web of life but as personalities of a sort which may share in their own further evolution. The first instalment, which is profusely illustrated, opens with a chapter on the Web of Life, in which the author sets out the linkage between bird and plant in the relation between missel-thrush and mistletoe, and the more complicated alliance in the petiole of a species of laburnum between plant, beetle, and mealy-bug. How such an alliance began he hardly attempts to explain, and the chapter ends on a note of inquiry which may well induce the reader to pursue the subject further. The great value of Prof. Thomson's work seems to us to lie in his power of setting out broad principles in an engaging manner, producing in his readers a taste for investigation on their own account. Moreover, the alliance of visible organisms in the web of life may be of help to the reader in visualising the inter-relations between microscopic cells on which organic function within the species depends. The work is to be completed in about 20 fortnightly parts at the price of 1*s.* 3*d.* each. (Geo. Newnes.)

NURSERY PSYCHOLOGY.

A SERIES of six lectures will be held this autumn at Carnegie House, 117, Piccadilly, on Everyday Psychology in the Nursery. These lectures are a further series of those held in the summer and the previous autumn, which proved to be a success. They will be welcomed by mothers who are anxious to hear the best authorities on various aspects of child life and difficulties. Amongst the lecturers are Dr. Hector Cameron, Sir Bruce Bruce-Porter, and Dr. Leonard Williams. There will be one special lecture for mothers and fathers on Family Discipline, by Dr. H. Crichton-Miller, on Thursday, Dec. 10th, from 6 to 7 P.M. The fees for these lectures are 7*s.* 6*d.* for any single lecture, or £2 for the series of lectures, and 15*s.* for two tickets for the special lecture by Dr. Crichton-Miller. The lectures will be under the headings of the Psychology of Infancy; Dangers of Tradition in the Nursery; Heredity and Environment; Habits and Subconscious Mind; Temperament; and Problems of School Age. These lectures take place on Thursdays, commencing Oct. 29th, at 3.15 P.M., and time is given at the end of each lecture for questions to be asked. Tickets may be obtained from Viscountess Erleigh, 65, Rutland-gate, S.W. 7, and Mrs. Ernest Shaw, 65, Conduit-street, W. 1.

THE PROFESSIONAL CLASSES AID COUNCIL.

UNDER this name the Professional Classes War Relief Council, instituted in October, 1914, has continued since 1920 its valuable work among those unpensioned sufferers from post-war conditions known as the new poor. How necessary such work is can be gathered from the fourth annual report of the Council for the year ending April, 1925, during which period 686 applications for help were received. The Council gave financial assistance—in many cases considerable—to 150 families, thus benefiting 344 individuals, and, in addition, 305 were advised where to obtain help. The scope of the Council's work is entirely dependent on the extent of the financial support it receives, and subscriptions will be welcomed by the treasurer at 251, Brompton-road, London, S.W. 3.

NATIONAL SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN.

THE Society's forty-first report shows the encouraging fact that neglect of and cruelty to children is gradually decreasing. The proportion of cases reported by the public is 62·5 per cent., larger than ever before, while the proportion discovered by inspectors is lower than in any previous period. In 1898 there were 2192 prosecutions and in 1924 there were 882. In recent years there has been a steady increase in the number of parents themselves seeking the advice and aid of the Society. There has also been a reduction in the number of instances where the children have had to be removed from the care of their parents. The conditions of life for children on canal boats is still unsatisfactory, and the Society has prepared a statement of facts for submission to Members of Parliament. It is hoped to secure legislation excluding children of school age from canal boats. The Guild of Good Courage consists of girls and young women who have been in the Society's legal custody as children and like to continue their association; it has a membership of 99. The medical branch has dealt with 700 cases, ranging from defective eyes and teeth to venereal disease, epilepsy, and chorea, and many cripples have been successfully operated on. A dinner in aid of the funds of the Society is to be held at the Guildhall on Nov. 25th. H.R.H. the Prince of Wales has graciously consented to preside and Sir W. Joynson-Hicks will speak. As the report says: "There is really no limit to what can be done to make life endurable for children if only all who are concerned in their welfare will coöperate to this end. Knowledge spreads slowly, and every time a new helper is secured the possibility of further usefulness is extended."

A GENEROUS OFFER.

A CORRESPONDENT writes: "A gentleman in a luxuriously appointed motor-car, whom I lately met on Exmoor, handed me a prodigious page of advertisement, containing an offer that should not be kept for one moment from the knowledge of your readers. You are too prejudiced to regard my plea for an open mind; yet I may remind you that these are days of overcrowding and competition when many a young man finds it hard to get his foot upon the ladder of success: £1000 per annum will be paid by my motoring acquaintance as salary to a qualified medical man who should possess the following qualifications. He must be able to make the blind to see, the deaf to hear, and the lame to walk. These biblical qualifications must be reinforced by ability to make flesh grow on withered limbs at the rate of a quarter to half an inch—whether this growth refers to thickness or superficies is not clear (as you will see by the advertisement which I enclose), but from hints dropped in conversation by the advertiser I infer that thickness is meant. Further, the applicant must be capable of curing 'undeveloped brain'; a vista of psychological possibilities thus opens into infinity. Two of the remaining qualifications required in the successful aspirant are a complete summary of professional competence—he must be able 'to inform patients what is the nature of their complaint, and its duration.' Here the power of diagnosis comes in. Lastly, it seems that he should be able to subdue pain in his patients without the use of drugs or anæsthetics, and above all to transmit vitality without contact. Apparently he is not expected to possess these abilities, but to acquire them by contact with the inventor, who states that 50,000 people have been already successfully treated and are walking testimonials to magnetic treatment. For his position will be that of an assistant who must submit to all rules and obey all regulations laid down by his principal and must act constantly as his locum tenens, showing as good a percentage of cures by pursuing the same methods."

As the advertiser succeeds in curing vast series of cases of "undeveloped brain" his business will diminish in ratio; so along one line of his activities we wish him luck. But we can hardly imagine any newspaper conducted by an editor with a brain sufficiently undeveloped to sanction the publication of this advertisement.

OBLITERATION OF TATTOO MARKS.

To the Editor of THE LANCET.

SIR,—Some years ago a patient of mine, a young woman, was tattooed on both legs. The present fashion of short skirts and thin stockings make the marks unduly prominent. Is there any method by which tattoo marks may be obliterated? I shall be grateful if any of your readers can tell me.

I am, Sir, yours faithfully,

Sept. 4th, 1925. M.B., &c.

THE PATIENT AS DIAGNOSTICIAN.

To the Editor of THE LANCET.

SIR,—For the information of my colleagues in London may I bring forward this story. A certain medical man in London is advising a patient, while travelling, to obtain the services of a local medical man every week wherever he may be for the purpose of injecting hypodermically a quack nostrum for the cure of a certain disease. In my case the patient met with a flat refusal and a letter followed to the London practitioner informing him of the fact. I may say that in his letter this doctor stated he was using this stuff "at the patient's own risk and responsibility"—a glaring irregularity in my opinion.

I am, Sir, yours faithfully,

Blackpool, Sept. 3rd, 1925. PERCY HOWARD DAY.

BRITISH HEALTH RESORTS.

WE have received a communication from Mr. Lyman D. Davis, Chairman of the Foreign Relations Committee of the Anglo-American Hotel Association, in which he pays a tribute to British holiday resorts from the point of view of an American "whose business has been for many years past connected with a number of the best known pleasure resorts in Europe and America." The Briton may decry his own pleasure resorts, both inland and coastal, but when it comes to the point of deciding where to spend his holiday he prefers a home resort, and when he travels abroad he does so for knowledge rather than enjoyment. In Mr. Davis's opinion all our possible continental competitors, in spite of their vigorous advertising, have been knocked out "because the facilities provided by the hotels and railway companies, town for town and village for village, are more complete and incomparably better and safer in Britain than in any other part of Europe." It is refreshing in these days to find anything British extolled for its own sake, and Mr. Davis's encouraging words will be appreciated.

THE DISINFESTATION OF LIVING SPACES.

To rid living spaces of insects and vermin is often difficult and as yet no standard method has been agreed upon. Hydrocyanic acid can, under careful regulations, be safely used in ships in harbours, but it is hardly suitable in barracks and tenements. For destroying rats and their fleas as well as other insects on ships sulphur has proved efficacious if the ship is thoroughly sealed down for six hours, but sulphur is not without its inconveniences. We are glad therefore to find in the *Journal of the Royal Army Medical Corps* for July a report by Major D. Reynolds on Disinfestation of Rooms by Formalin. He tells us that he has secured complete destruction of bugs in infested rooms when employing, as a minimum, 2 pints of formalin (40 per cent. formaldehyde) per 1000 cubic feet, poured on 2 lb. of a mixture of one-fifth quicklime and four-fifths bleaching powder, in a warm (70° F.) and damp (70 per cent. humidity) atmosphere. The vapour is allowed to act for at least 24 hours. Unfortunately, the question of cost is not discussed; 3 lb. of sulphur would cost 7*d.* at current wholesale prices, but 2 pints of formalin would be 3*s.*, plus the cost of the bleaching powder. It would be a help to medical officers of health and others concerned in the planning of disinfestation work if authors when describing new large-scale methods would mention the cost per 1000 cubic feet at which, in their experience, the methods they recommend have been carried through, differentiating if possible the cost of the materials from that of the labour employed.

CASTRATION THREATS TO CHILDREN.

WE have received from a lay correspondent an account of the disastrous effects of a castration threat directed towards himself when 3½ years old, as a punishment for an exhibitionist act. The memory of this he claims to have recovered by a process of self-analysis, and he is emphatic about the evil influence of such threats in connexion with the infantile tendency to exhibitionism, declaring that not more than two or three boys out of every ten escape some threat of this nature. This situation he links with the "castration complex," believed by psycho-analysts to be a frequent factor in mental disturbances of later life, and he suggests that parents should tell the two-year-old boy that he must not expose his genitals, but he is not to be frightened if anyone makes a cutting off threat against these parts, whilst servants and others should be warned against making the threat, though the child is to be smacked on the buttocks, if necessary, to check the forbidden behaviour. If our correspondent's view of the results of the threat be correct the remedy seems, on psycho-analytical grounds, to be equally inadvisable, for corporal punishment of this nature has been known to arouse perverted tendencies. Assuming that children pass through an exhibitionist phase it would surely be best to regard it as unemotionally as we regard other childish peccadilloes; we do not attach great emotional value, for example, to the offence of throwing food upon the floor and yet children quickly learn that "it isn't done." The castration threat may well ferment in the childish mind and is to be condemned; our aim should be to avoid feeling or showing emotional reaction towards behaviour which is nothing more than a passing phase, but may, if psycho-analytical findings are sound, become a source of serious trouble if excessive emotion is attached to it. Our correspondent has little doubt himself that the findings obtained by careful psycho-analysis are sound although the process is frequently painful.

Oil Fuel at the London Hospital.—The governors who, a few years ago, refused to replace coal fuel with oil have now reversed their decision and have decided to build a central boiler establishment to serve the whole of the hospital, the fuel being oil. There are still 101 closed beds in the hospital.

Messrs. Kelvin, Bottomley and Baird, Ltd., 51–52, Fenchurch-street, E.C. 3, have published a new eight-page list of apparatus for ultra-violet light therapy. Their full catalogue is in course of preparation. A copy will be sent on request to anyone interested.

X. Y. Z.—The medical statisticians present at the luncheon given by the Government on August 13th were: Dr. S. Rosenfield (Austria), Dr. Camille Jaquart (Belgium), Dr. H. J. Hansen (Denmark), Dr. T. H. C. Stevenson (England), Dr. Martti Kovero (Finland), Dr. M. Huber (France), Dr. E. Roesle (Germany), Dr. Cunnar Jahn (Norway), Dr. J. C. Dunlop (Scotland), Dr. E. H. N. Arosenius (Sweden), Dr. Marcel Ney (Switzerland), Dr. W. H. Davis (United States), Dr. A. Aguirre-Sayago (Chili), Dr. Martin Kacprzak (Poland), Mr. K. Stouman, and Mr. J. Pagnod (League of Nations).

THE British Dyestuffs Corporation, Limited, of 70, Spring-gardens, Manchester, have sent us a price list of fine organic chemicals for research work, which also includes a list of indicators, microscope stains, medicinal and photographic chemicals. The stains have been prepared from selected dyes tested at the Manchester Laboratory of Applied Pathology and Preventive Medicine. The indicators offered range in a complete series from pH nil, e.g., naphthol yellow S, to pH 13, e.g., Titan yellow. The Corporation were the original manufacturers of acriflavine in this country, and euflavine is now offered, being the same compound with one molecule of HCl removed. Auramine, put up in solution as glauramine, is believed to be one of the most powerful antiseptics ever produced. New products of the urea type have also been elaborated and tested.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Sept. 14th, to SATURDAY, Sept. 19th.—HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars. Daily instruction in the Out-patient Department from 2.30 P.M. Special demonstration of cases on Tuesday, and a Venereal Clinic on Tuesday and Thursday from 5.30 to 7 P.M.—THE INFANTS HOSPITAL, Vincent-square, S.W. Special Course. Lectures and demonstrations every afternoon. "Round Table" consultation on Friday, and on Saturday a visit to the Home for Blind Babies.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Charing Cross. Clinical demonstration every afternoon from 2 o'clock with special demonstration three times a week